175

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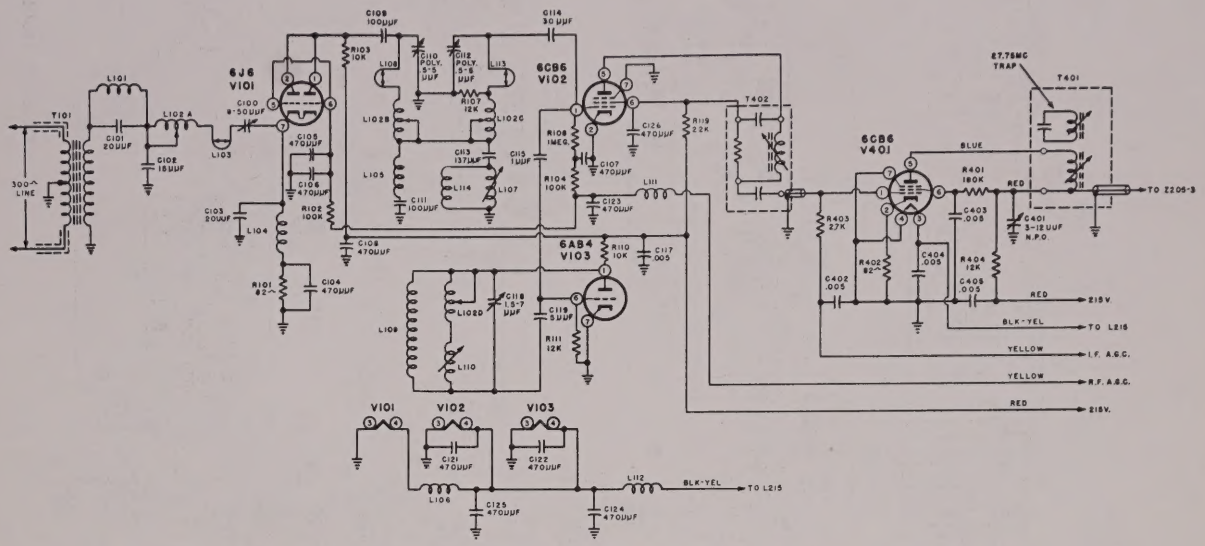
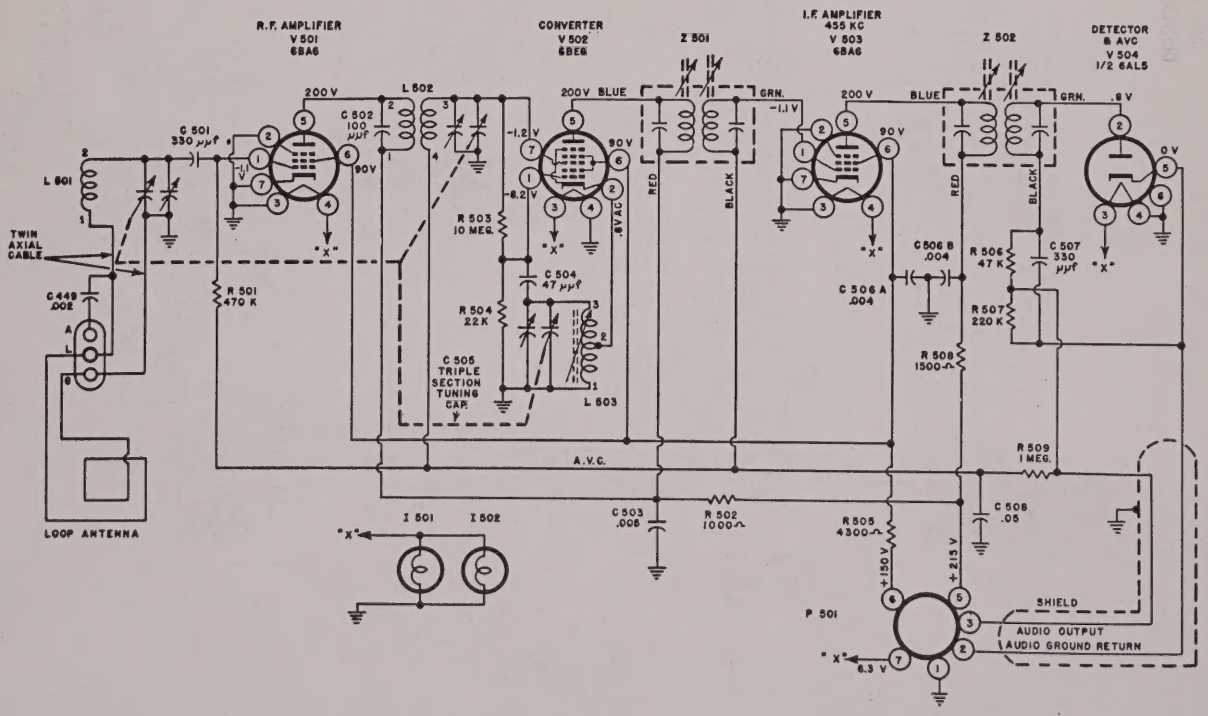
INPUTUNER

89003041



RA-130A AM TUNER



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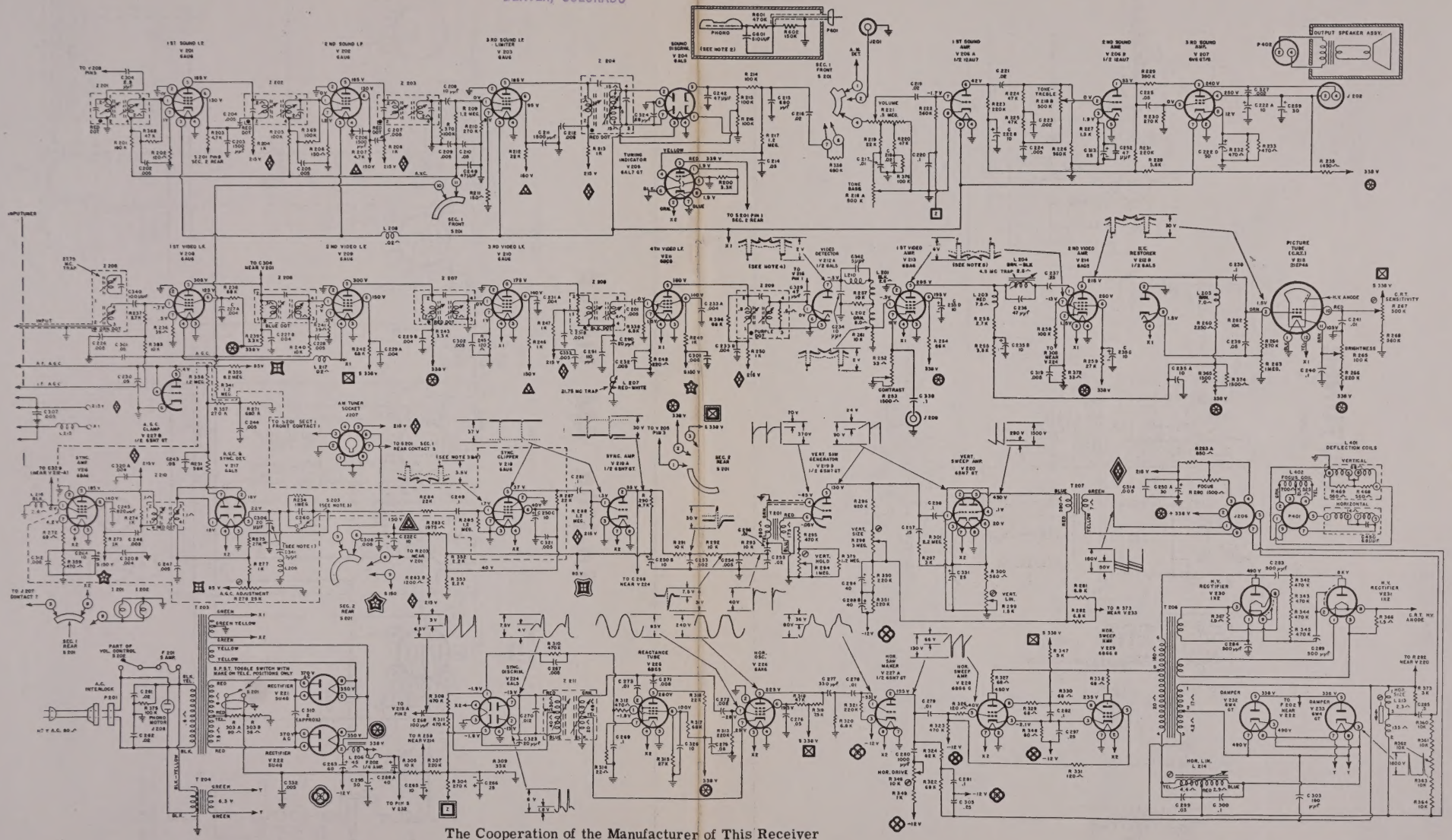

The Cooperation of the Manufacturer of This Receiver
Makes it Possible to Bring You This Service

DUMONT MODEL RA-130

PRELIMINARY DATA
The data contained in this folder is published in advance of regular PHOTOFACT Coverage

SET 175 FOLDER 1 A

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PHOTOFACT* Folder

AMBASSADOR MODELS C1720, C2020, C2420, CD2020, T1720, T2020

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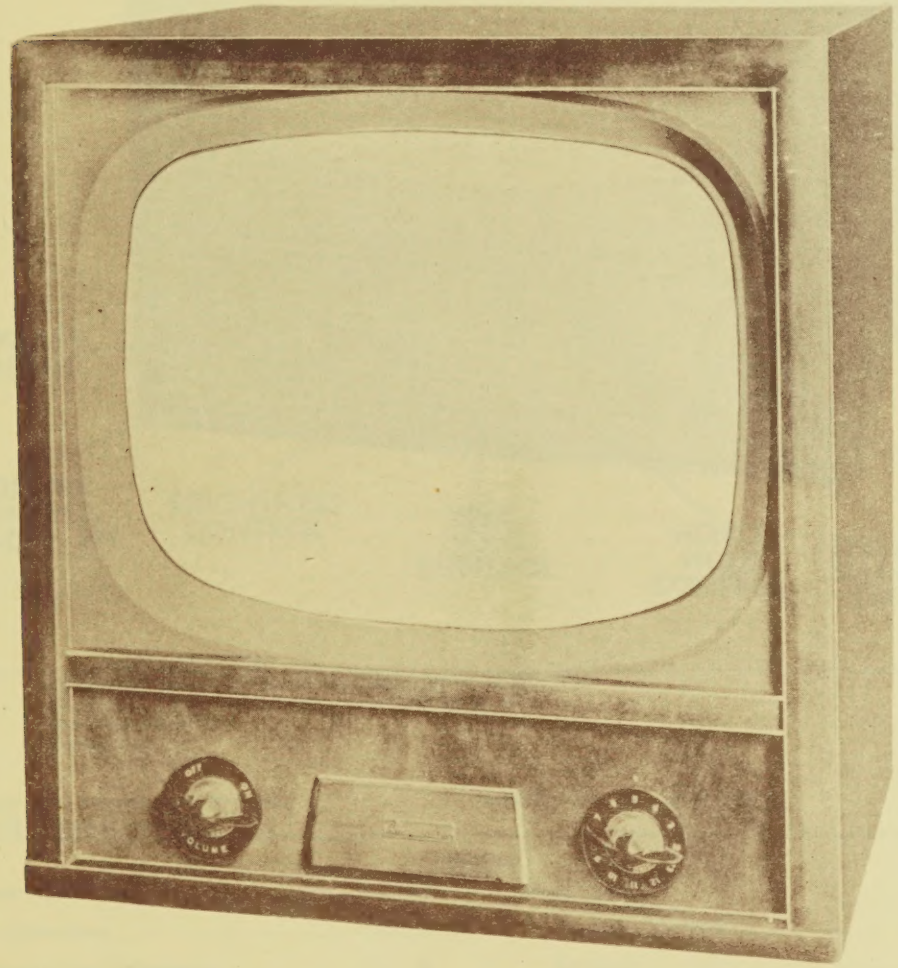

MODEL T2020

AMBASSADOR MODELS C1720, C2020, C2420, CD2020, T1720, T2020

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*TRADE MARK

AMBASSADOR MODELS C1720, C2020, C2420, CD2020, T1720, T2020

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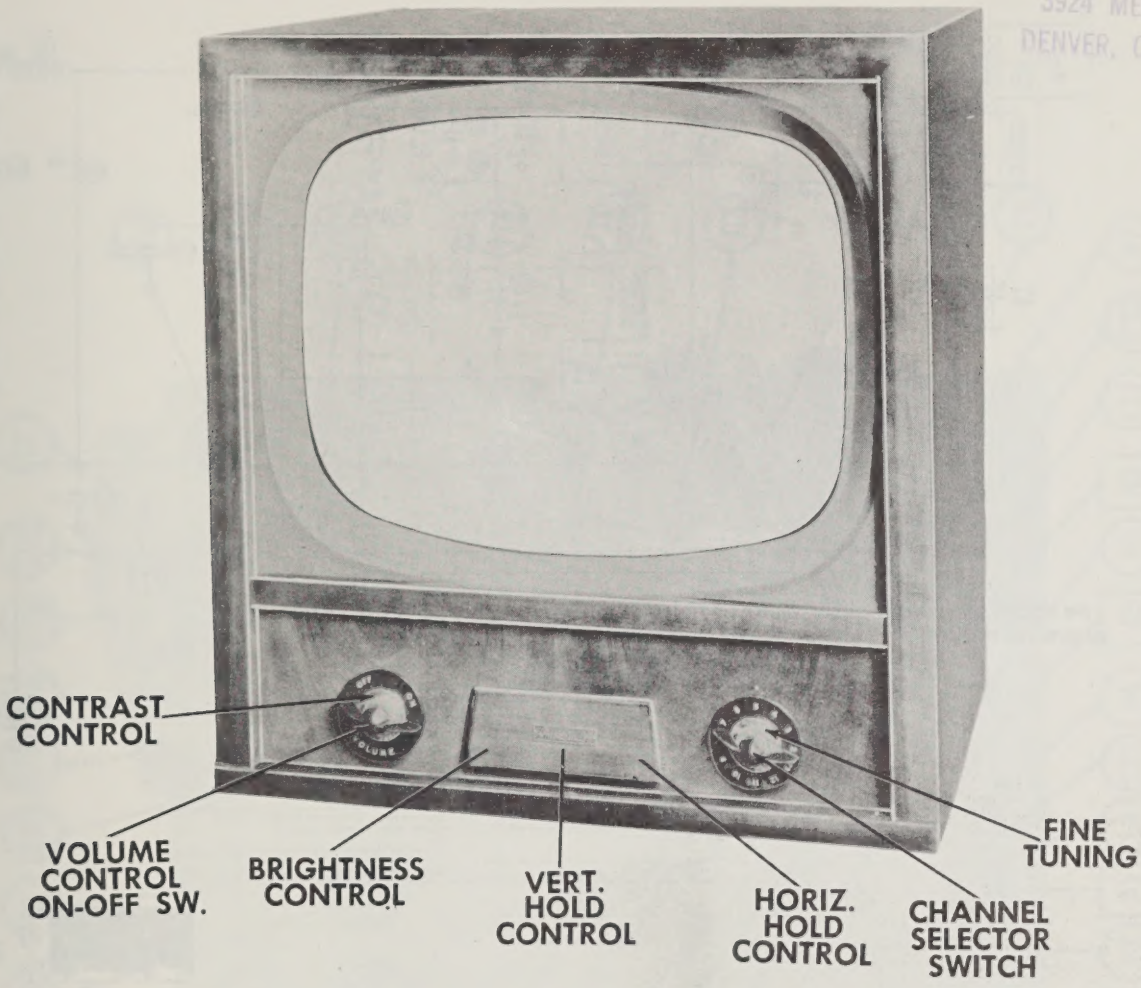

Ambassador T2020

TRADE NAME	Ambassador Models C1720, C2020, C2420, CD2020, T1720, T2020
SUPPLIER	Allied Pur. Corp., 401 5th Ave., New York 16, N. Y.
TYPE SET	Television Receiver
TUBES	Twenty-One

POWER SUPPLY 110-120 Volts AC- 60 Cycle RATING 2.24 Amp. @ 117 volts AC
TUNING RANGE—Channels 2 thru 13

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AMBASSADOR MODELS C1720, C2020, C2420, CD2020, T1720, T2020

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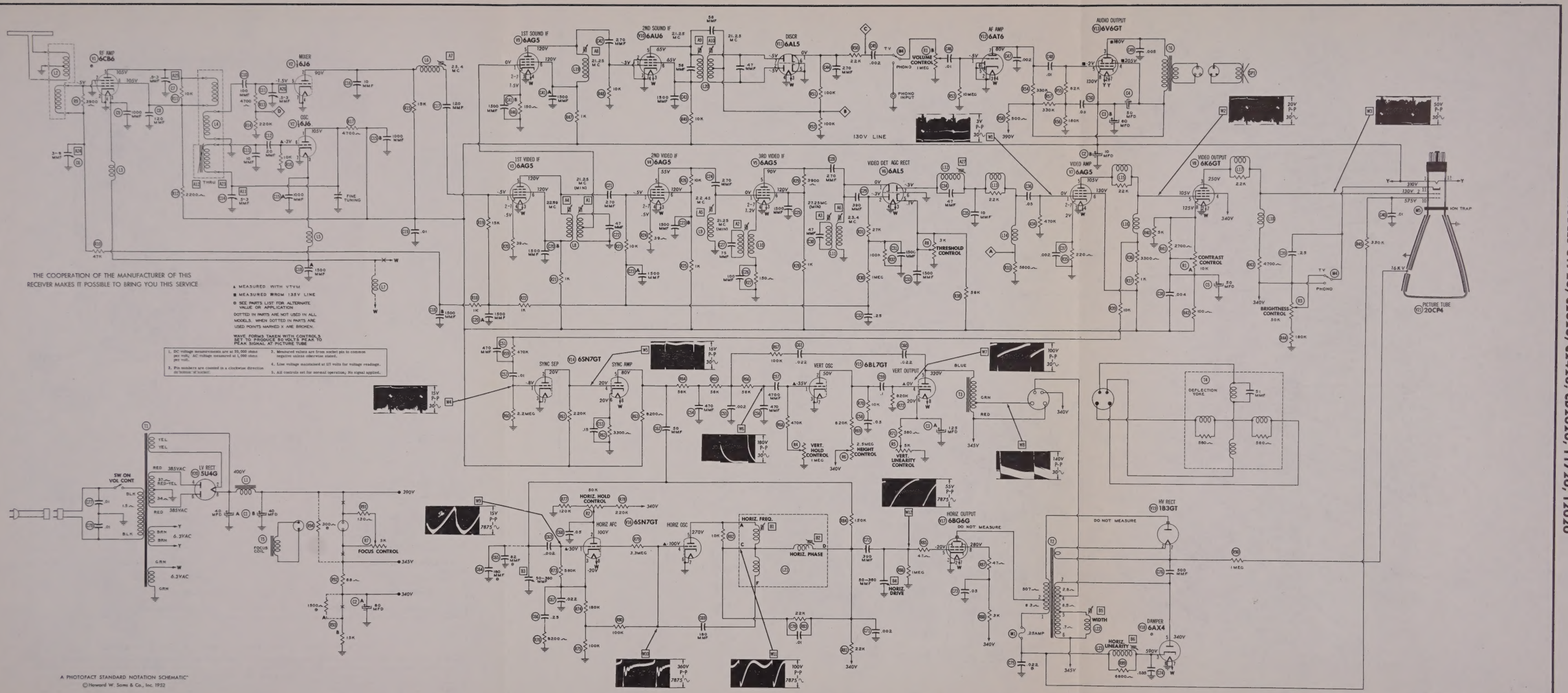
DATE 8-52 SET 175 FOLDER 2


AMBASSADOR
MODELS C1720, C2020, C2420, CD2020, T1720, T2020
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
▲ MEASURED WITH VTVM
■ MEASURED FROM 135 V LINE
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt. AC voltage measured at 1,000 ohms per volt.
2. Measured values are from socket pin to common negative unless otherwise noted.
3. Pin numbers are counted in a clockwise direction as looking at socket.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, No signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1952
AMBASSADOR
MODELS C1720, C2020, C2420, CD2020, T1720, T2020

CHASSIS TOP VIEW

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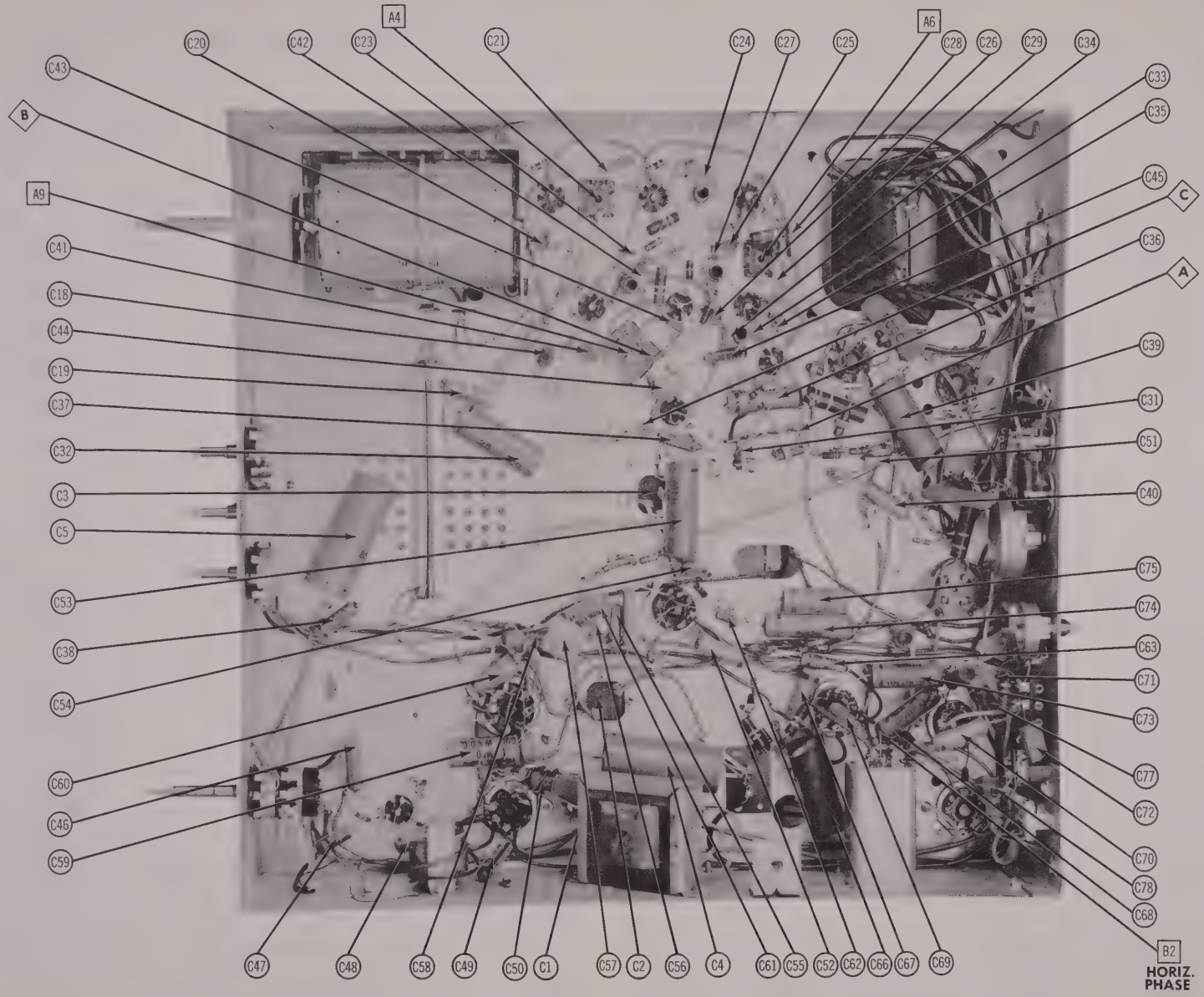
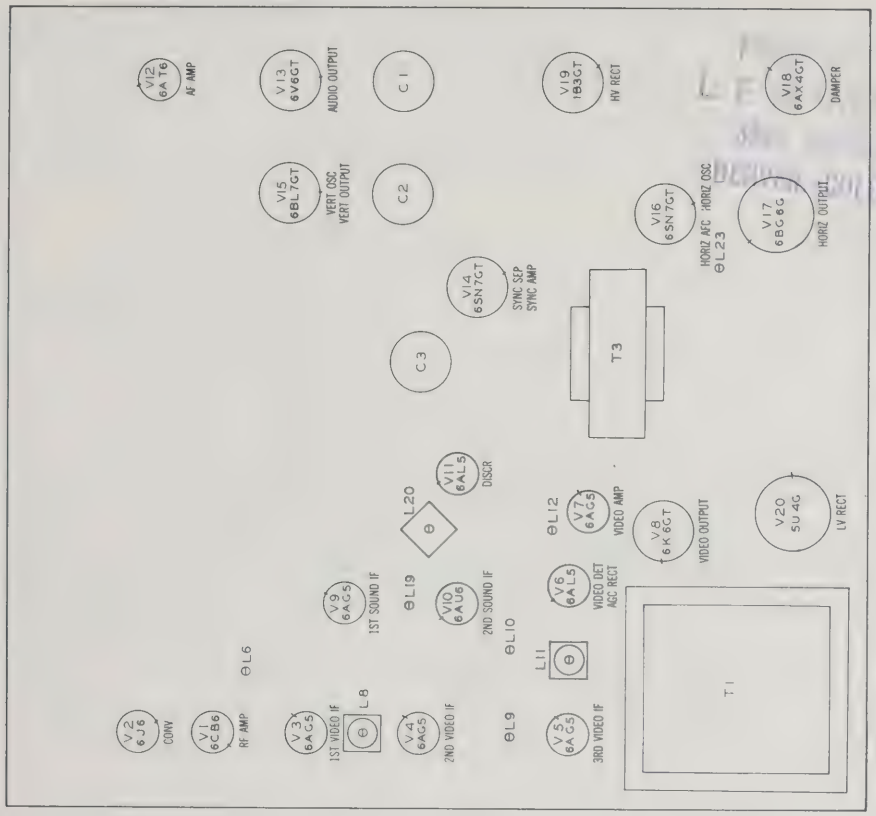
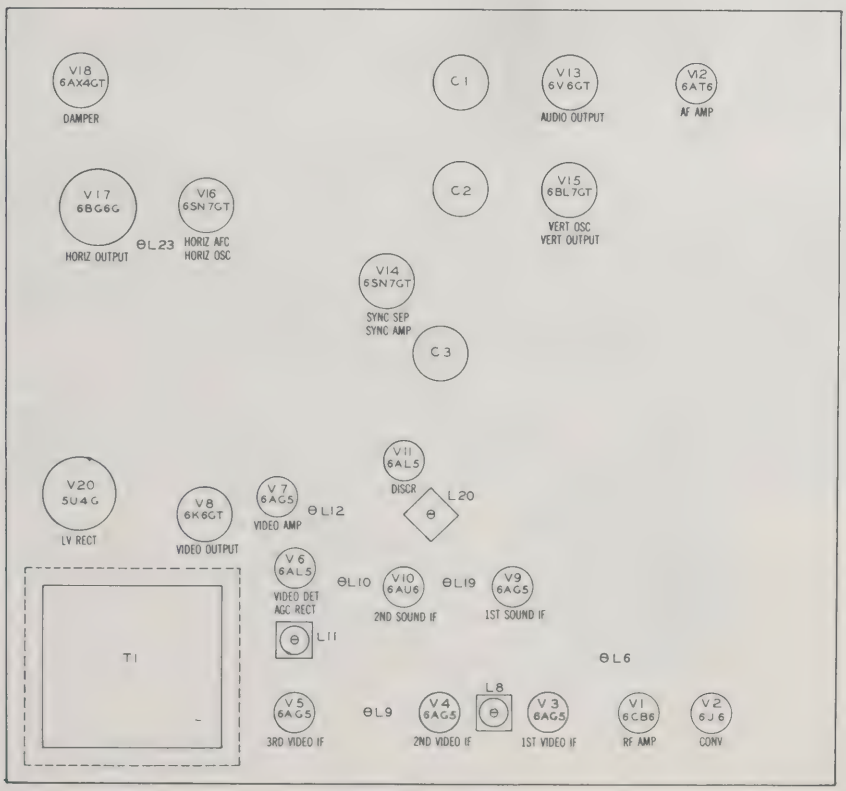


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



TOP VIEW



BOTTOM VIEW

TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	21.25MC (unmod.)	Any	DC probe to Point (A). Common to chassis.	A1, A2	Adjust for MINIMUM deflection.
2.	"	"	27.25MC	"	"	A3	"
3.	"	"	22.69MC	"	"	A4	Adjust for maximum deflection. Attenuate signal generator output to maintain approximately 2 volt reading.
4.	"	"	22.45MC	"	"	A5	"
5.	"	"	23.4MC	"	"	A6	"
6.	"	"	25.4MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the negative lead of a 3 volt battery to the ungrounded side of C32. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	23.0MC 25.75MC	Any	Vert. Amp. to point (A). Low side to chassis.	A4, A6, A7	Check for response curve similar to fig. 1. Adjust A7 for proper placement of 25.75MC marker. Retouch A4 for placement of 23.0MC marker. Retouch A6 for flat top on response curve. Remove bias battery.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	21.25MC (unmod.)	Any	DC probe to Point (B). Common to chassis.	A8, A9	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to Point (C). Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450 KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	21.25MC (450 KC Swp)	21.25MC	Any	Vert. amp. to point (B). Low side to chassis.	A8, A9	Adjust for maximum amplitude and symmetry as per fig. 2.
9.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A10	Adjust A10 so 21.25MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A9 for maximum amplitude and straightness of cross over lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using All. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel. If adjustment of All will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10	Direct	High side to either antenna terminal. Low side to chassis.	215.75MC (unmod.)	13	DC probe to Point (C). Common to chassis.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
			209.75MC	12		A13	
			203.75MC	11		A14	
			197.75MC	10		A15	
			191.75MC	9		A16	
			185.75MC	8		A17	
			179.75MC	7		A18	
			87.75MC	6		A19	
			81.75MC	5		A20	
			71.75MC	4		A21	
			65.75MC	3		A22	
			59.75MC	2		A23	

ALIGNMENT INSTRUCTIONS (CONT.)

RF ALIGNMENT

Reconnect the negative lead of the 3 volt battery to the ungrounded side of C32.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to point (D) Low side to chassis.	A24, A25 A26	Adjust for response curve similar to fig. 4 with markers above 90%.
12.	"	"	213MC (10 MC Swp)	211.25MC 215.75MC	13	"		Check all channels for response curve similar to fig. 4. If markers fall below 70% on any channel make slight adjustment of A24, A25 and A26 with channel switch set for that channel. Recheck all channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75.MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

4.5MC TRAP ADJUSTMENT

With alignment completed and the receiver operating, connect a short across the trap winding of L8. Tune in a strong TV station and examine the picture for evidence of 4.5MC beat interference. If interference is present adjust A27 to minimize that interference. Remove the short from L8.

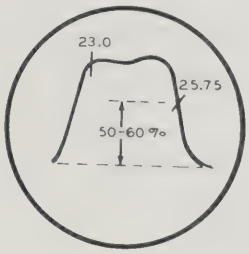


FIG. 1

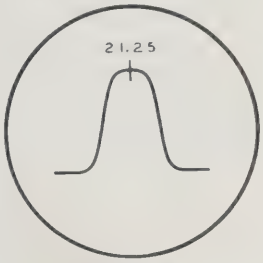


FIG. 2

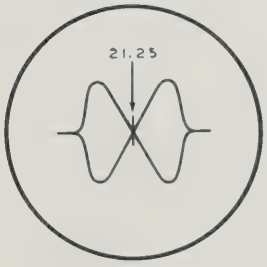


FIG. 3

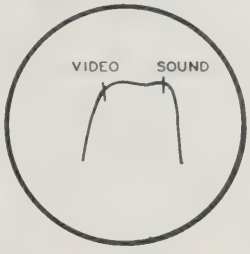


FIG. 4

RESISTANCE MEASUREMENTS

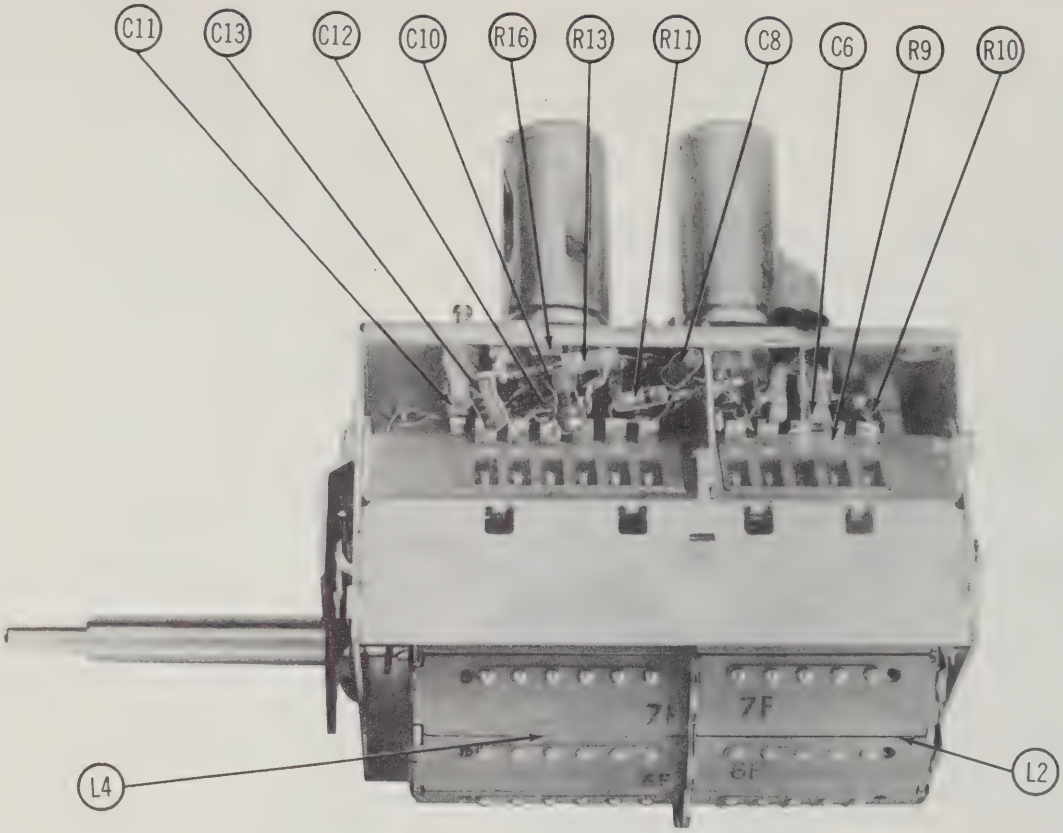
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	1.1Meg	0Ω	.1Ω	0Ω	■2.2KΩ	■2.2KΩ	0Ω		
V 2	6J6	■4.7KΩ	■15KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AG5	1.1Meg	39Ω	.1Ω	0Ω	■1KΩ	■1KΩ	39Ω		
V 4	6AG5	1.1Meg	39Ω	.1Ω	0Ω	■11KΩ	■1KΩ	39Ω		
V 5	6AG5	.3Ω	150Ω	.1Ω	0Ω	■4.9KΩ	■1KΩ	150Ω		
V 6	6AL5	.2Ω	127KΩ	.1Ω	0Ω	550Ω	0Ω	5.6KΩ		
V 7	6AG5	470KΩ	220Ω	0Ω	.1Ω	■4.3KΩ	■0Ω	220Ω		
V 8	6K6GT	†5KΩ	0Ω	†5KΩ	†320Ω	■4.3KΩ	†5KΩ	.1Ω	■600Ω	
V 9	6AG5	0Ω	150Ω	0Ω	.1Ω	■1KΩ	■1KΩ	150Ω		
V 10	6AU6	10KΩ	0Ω	.1Ω	0Ω	■10KΩ	■10KΩ	0Ω		
V 11	6AL5	200KΩ	100KΩ	.1Ω	0Ω	0Ω	0Ω	100KΩ		
V 12	6AT6	10Meg	0Ω	0Ω	.1Ω	0Ω	0Ω	†330KΩ		
V 13	6V6GT	INF	■.1Ω	†850Ω	†550Ω	200KΩ	INF	■0Ω	5KΩ	
V 14	6SN7GT	2.2Meg	■220KΩ	0Ω	■220KΩ	■8.2KΩ	3.3KΩ	0Ω	.1Ω	
V 15	6BL7GT	1.2Meg	†2.3Meg	0Ω	820KΩ	†1.5KΩ	1.4KΩ	0Ω	.1Ω	
V 16	6SN7GT	700KΩ	100KΩ	280KΩ	200KΩ	†22KΩ	0Ω	0Ω	.1Ω	
V 17	6BG6G	†3.3KΩ	0Ω	0Ω	INF	1Meg	INF	.1Ω	†3.3KΩ	TOP CAP #99Ω
V 18	6AX4GT	INF	INF	INF	INF	†326Ω	INF	.1Ω	0Ω	
V 19	1B3GT	PINS 1 THRU 8 HAVE INF RESISTANCE								TOP CAP #606Ω
V 20	5U4G	INF	13KΩ	INF	37Ω	INF	34Ω	INF	13KΩ	
V 21	20CP4	■0Ω	†5KΩ	PIN 10 #330KΩ	PIN 11 †24KΩ	PIN 12 ■.1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V20
# MEASURED FROM PIN 3 OF V18
■ MEASURED FROM 130VDC LINE

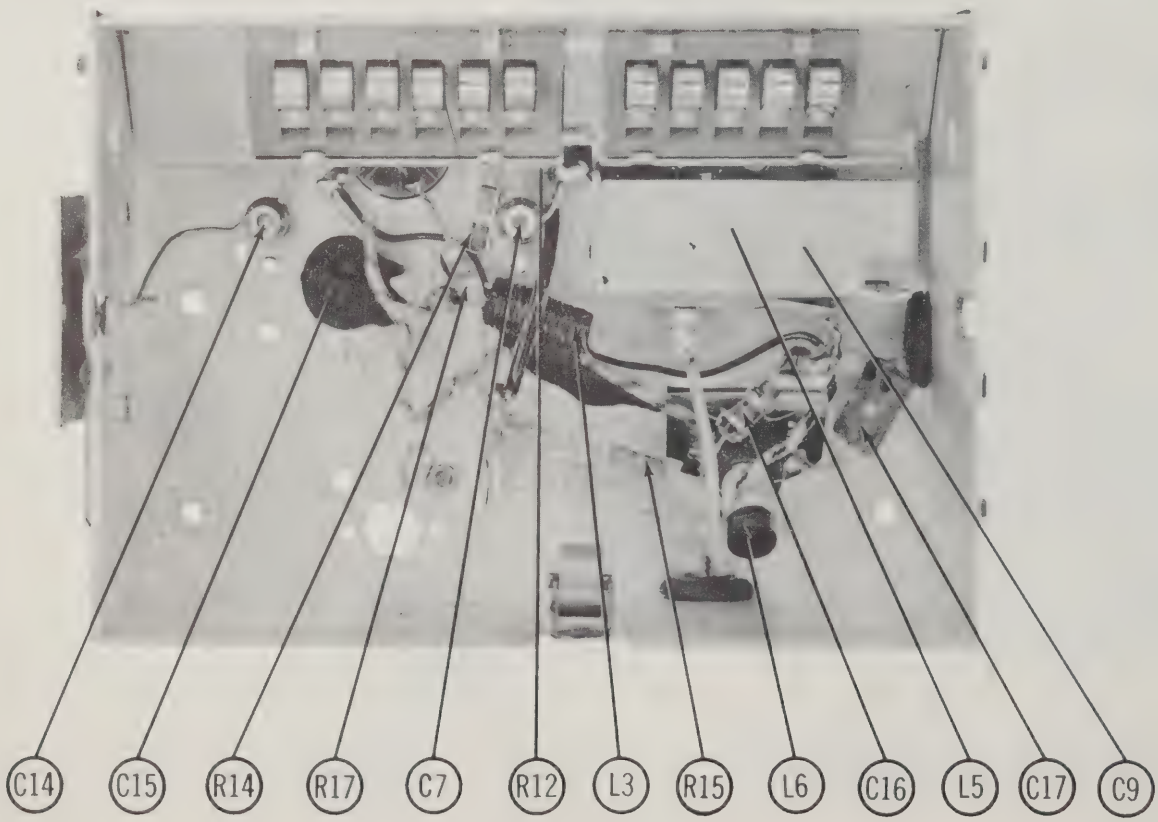
DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 5 wood and 2 metal screws. Remove rear cover.
3. Disconnect built-in Antenna and Speaker.
4. Remove 2 nuts holding Speaker. Remove Speaker.
5. Remove 3 Chassis Bolts. Remove Chassis.

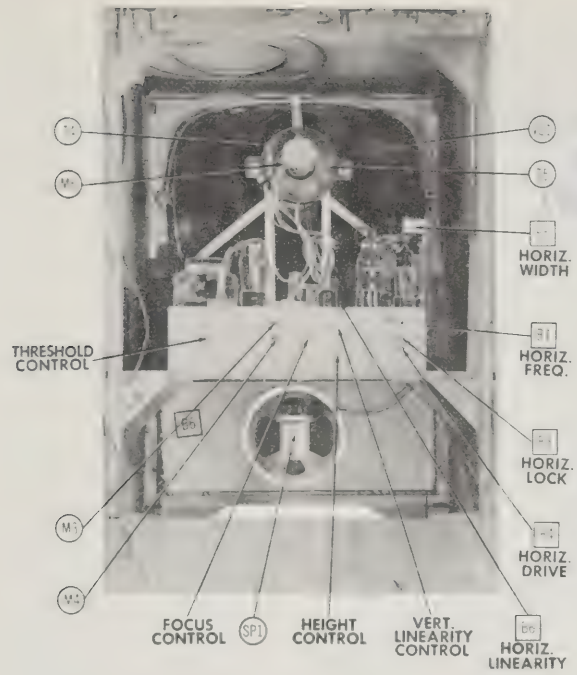
NOTE. For Picture Tube Removal it is necessary to remove chassis as outlined above.



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR CHECK

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control fully clockwise. The picture should remain in sync. Momentarily interrupt the signal by switching to another channel and back again. The picture should pull into sync.

Turn the horizontal hold control fully counter clockwise.

Momentarily interrupt the signal by switching to another channel and back. The picture should be out of sync with approximately 10 sloping bars appearing.

If the receiver passes the above check, no oscillator alignment is required, if not, continue with horizontal oscillator alignment.

HORIZONTAL OSCILLATOR ALIGNMENT

Pre-set adjustments as follows :

Horizontal drive trimmer (B4) approximately 1/4 turn from fully clockwise.

Horizontal lock trimmer (B3) approximately 1/2 turn from fully clockwise.

Horizontal frequency slug (B1) so that 3/4 inch of screw extend from coil form.

Horizontal hold control at mid-position of its range.

Adjust the horizontal phase slug (B2) to sync the picture horizontally .

Turn the horizontal hold control fully counter-clockwise and switch to another channel and back again. Approximately 10 sloping bars should appear.

With the horizontal hold control at mid range, momentarily switch to another channel and back again. The picture should return to sync.

Failure to return to sync on the last 50% clockwise rotation of the horizontal hold when the signal is interruped momentarily indicates insufficient "sync lock".

To correct this condition adjust B3 counter-clockwise.

If the picture "jumps" when the horizontal hold is turned clockwise too much "sync lock" is indicated. To correct this condition adjust B3 clockwise.

Adjust the width slug (B5) so that the screw extends approximately 1 inch above the coil dome.

Adjust B4 to the point where compression of the center of the picture just begins to appear, then reverse the adjustment a slight amount.

Adjust the linearity slug (B6) for a symmetrical picture from left to right.

AGC THRESHOLD CONTROL ADJUSTMENT

The correct setting of the threshold control will be determined by the signal strength in the area where the set is to operate.

The control should be adjusted for maximum sensitivity without overloading when the contrast control is at maximum.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Ambassador PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6CB6	6CB6	7CM	
B	RF Amplifier	6AG5	6AG5	7BD	
V2	Converter	6J8	6J8	7BF	
V3	1st. Video IF Amp.	6AG5	6AG5	7BD	
V4	2nd. Video IF Amp.	6AG5	6AG5	7BD	
V5	3rd. Video IF Amp.	6AG5	6AG5	TBD	
V6	Video Detector - AGC Rectifier	6AL5	6AL5	5BT	
V7	Video Amplifier	6AG5	6AG5	7BD	
V8	Video Output	6K6GT	6K6GT	7AC	
V9	1st. Sound IF Amp	6AG5	6AG5	7BD	
V10	2nd Sound IF Amp	6AU6	6AU6	7BK	
V11	Discriminator	6AL5	6AL5	5BT	
V12	AF Amplifier	6AT6	6AT6	7BT	
V13	Audio Output	6V6GT	6V6GT	7AC	
V14	Sync Separator - Sync Amplifier	6SN7GT	6SN7GT	8BD	
V15	Vert. Oscillator - Vert. Output	6BL7GT	6BL7GT	8BD	
V16	Horiz. AFC - Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V17	Horiz. Output	6BG6G	6BG6G	5BT	
V18A	Damper	6AX4GT	6AX4GT	4CG	
B	Damper	6W4GT	6W4GT	4CG	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Ambassador PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RMA BASE TYPE	NOTES
V21	20CP4	20CP4		12D	① 3/8" longer
		20BP4	①	12D	② Circuit changes necessary
		20CP4A	②	12D	
		20DP4A	① ②	12D	
		20HP4	① ②	12C	
		20HP4A	① ②	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: Ambassador PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	40	450		AFH2-57		UPT4445		FP248	TVL-2764	▲
B	40	450			829-3					▲
C2A	80	450		AFH2-62		UPT8145		FP245	TVL-2776	▲
B	10	450								▲
C3A	125	25		PRS25/100		BRH251A			TVA-1207	▲
B	80	200		AFH-30		UP6025			TVL-1525	▲
C4	50	350		PRS450/40		BR4035		TC68	TVA-1713	
C5	50	350		PRS450/40		BR4035		TC68	TVA-1713	
C6	3-9				829-10					
C7	5-3				829-3			CT585A		
C8	120			SII20	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C9	1000			SII000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C10	100			SII00	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C11	5-3				829-3			CT585A		
C12	20			SI20NP0	TCZ-20		NP0K-200	ZT-542		
C13	10			SII0N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C14	5-3				829-3			CT585A		
C15A	1000		BPD-2X001	DD-2-102	TM5DD1	812-001		DCD-521	5HK-2D1	
B	1000									
C16	10			SI10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C17	120			SII20	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C18A	1500			BPD-2X0015	DD-2-152	TM5DD15	B12-0015	DCD-5215	5HK-2D15	
B	1500									
C19	01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C20A	1500			BPD-2X0015	DD-2-152	TM5DD15	B22-0015	DCD-525	5HK-2D15	
B	1500									
C21	270	500		SII270	D6-271		GP2K-271	UC-5327	5GA-T27	
C22	47			SI47NP0	TCZ-47		NP0K-470		5TCC-Q47	
C23A	1500		BPD-2X0015	DD-2-152	TM5DD15	B22-0015		DCD-5215	2HK-2D15	
B	1500									
C24	270	500		SII270	D6-271		GP2K-271	UC-5327	5GA-T27	
C25	1500			SII500	D6-152	TM5T15	GP2L-152	UC-5215	5HK-D15	
C26	100			SII00	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C27	75									
C28	270	500		SII270	D6-271		GP2K-271	UC-5327	5GA-T27	
C29	390	500		1469-0004	D6-391	5R5T4	GP2K-391	MCB243	MS-34	
C30	47			SI47NP0	TCZ-47		NP0K-470		5TCC-Q47	
C31	1500			SII50	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C32	25	400		P488-25		PTE4P25		PT4025	4TM-P25	
C33	1500			SII500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C34	47	500		1469-00005		5R5Q5		MCB225	MS-45	
C35	10			SII0	D6-100	5W5Q1	GP1K-100	UC-541	5GA-Q1	
C36	05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C37	002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C38	004	600		P688-004	D6-402	PTE6D4	GP2-333-402	PT624	6TM-D4	
C39	.25	400		P488-25		PTE4P25		PT4025	4TM-P25	
C40	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C41A	1500			BPD-2X0015	DD-2-152	TM5DD15	B12-0015	DCD-5215	5HK-2D15	
B	1500									
C42	270	500		SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C43	1500			SII500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C44	270	500		SI270	D6-271	5R5T3	GP2K-271	UC-5327	5GA-T27	
C45	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Ambassador PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C46	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-D1	
C47	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C48	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C49	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C50	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C51	470	500		1468-0005	D6-471	5W5T5	GP2K-471	MC245	1FM-35	
C52	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C53	.15	600		684-15				PT6015		
C54	470	500		1468-0005	D6-471	5W5T5	GP2K-471	MC245	1FM-35	
C55	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C56	470	500		1468-0005	D6-471	5W5T5	GP2K-471	MC245	1FM-35	
C57	4700	500		1464-005		1DR5D5		MCB465	MS-25	
C58	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C59	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C60	.022	600		P688-022		PTE6S22		PT6122	6TM-S22	
C61	.022	600		P688-022		PTE6S22		PT6122	6TM-S22	
C62	50			SI50	D6-500	TM5Q5	GP1K-500	UC-545	5GA-Q5	
C63	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C64	180									*
C65	82									*
C66	.25	400		P488-25		PTE4P25		PT4025	4TM-P25	
C67	.022	600		P688-022		PTE6S22		PT6122	6TM-S22	
C68	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C69	180	500								
C70	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C71	.002	600		P688-002		PTE6D2		PT622	6TM-D2	
C72	390	500		1464-0004		5R5T4		MCB243	MS-34	
C73	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C74	.035	1000								
C75	.022	1000		P1088-022		PTE16S22		PT6122	MB-S22	†
C76	500	20000		HV20A	TV1-502	MM-A20TS	410-501			
C77	.01	600		689ZGXY-01		PJS81		PT611	6TM-S1	
C78	.01	600		689ZGXY-01		PJS81		PT611	6TM-S1	

* These items replaced by single variable trimmer in late models.
† Some models use .027MFD in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Ambassador PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	10KΩ	½	131-0003	QJ-318 *	RTV-1		UF14L	Contrast - Panel
B	1Meg	½					UR16A	Volume & SW - Rear
C							US-26	Attach to R1A
R2A	50KΩ	½	131-0012	QII-123	AG-44-S	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-3	Not Req.	Attach to R2A
R3A	50KΩ	½	131-0012	QII-123	AG-44-S	AB-31	U-35	Brightness
B	Shaft		Not Req.	Not Req.	KSS-3	AK-6	Not Req.	Attach to R3A
R4A	1Meg	½	131-0013	QII-137	AG-61-S	AB-69	U-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R4A
R5A	5000Ω	½	131-0001	QII-114	AG-19-S	AB-10	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	2.5Meg	½	131-0002	QII-239	AG-84-S	AB-83	SU-565	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7	5000Ω	4	131-0014		RTV-10	SVP-988		Focus - Wire Wound
R8	3000Ω	1						Threshold - Wire Wound

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B17-116 & P1-121 (Panel) B13-137 & R1-205 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Ambassador PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ±10% UNLESS OTHERWISE NOTED
R9	3900Ω	½		BTS-3900	Antenna Coil Shunt
R10	47KΩ	½			RF Amp. Grid
R11	10KΩ	½			RF Coil Shunt
R12	2200Ω 20%	½		BTS-2200	RF Amp. Decoupling
R13	4700Ω	2		BTS-4700	Mixer Grid
R14	220KΩ 20%	½			Mixer Grid
R15	15K 20%	½		BTS-15K	Mixer Plate
R16	10KΩ	½			Osc. Grid
R17	4700Ω	½		BTS-4700	Osc. Plate
R18	1000Ω 20%	½		BTS-1000	AGC Network
R19	15KΩ	½			1st. Video IF Amp. Grid
R20	39Ω	½			1st. Video IF Amp. Cathode
R21	1000Ω 20%	½		BTS-1000	1st. Video IF Amp. Decoupling
R22	1000Ω 20%	½		BTS-1000	AGC Network
R23	10KΩ 5%	½			2nd. Video IF Amp. Grid
R24	39Ω	½			2nd. Video IF Amp. Cathode
R25	10 KΩ	½		BTS-1000	2nd. Video IF Amp. Decoupling
R26	10KΩ 5%	1			2nd. Video IF Amp. Plate
R27	150Ω 20%	½		BTS-150	3rd. Video IF Amp. Cathode
R28	1000Ω	½		BTS-1000	3rd. Video IF Amp. Decoupling
R29	3900Ω	1		BTA-3900	3rd. Video IF Amp. Plate
R30	1Meg 20%	½		BTS-1Meg	AGC Network
R31	27KΩ	½		BTS-27K	AGC Network
R32	100KΩ 20%	½		BTS-100K	AGC Rectifier Diode Load
R33	5600Ω	½		BTS-5600	Video Det. Diode Load
R34	470KΩ 20%	½		BTS-470K	Video Amp. Grid
R35	220Ω	1		BTS-220	Video Amp. Cathode
R36	3300Ω 20%	½		BTS-3300	Video Amp. Plate
R37	1000Ω	½		BTS-1000	Video Amp. Plate
R38	56KΩ	½		BTS-56K	Voltage Divider
R39	10KΩ 20%	½		BTS-10K	Isolation
R40	5000Ω	5		1 3/4A-5000	Voltage Divider - Wire Wound
R41	2700Ω 20%	½		BTS-2700	Contrast Control Shunt
R42	100Ω 20%	2		BTS-100	Video Output Cathode
R43	4700Ω	2		BTB-4700	Video Output Plate
R44	180KΩ	½		BTS-180K	Voltage Divider
R45	330KΩ 20%	½		BTS-330K	Acc. Anode Load
R46	150Ω 20%	½		BTS-150	1st. Sound IF Amp. Cathode
R47	1000Ω	½		BTS-1000	1st. Sound IF Amp. Decoupling

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Ambassador PART No.	IRC PART No.	IDENTIFICATION CODES
R48	10KΩ 20%	½			2nd. Sound IF Amp. Grid
R49	10KΩ	1			2nd. Sound IF Amp. Decoupling
R50	22KΩ 20%	½		BTS-22K	De-emphasis
R51	100KΩ	½		BTS-100K	Discriminator Diode Load
R52	100KΩ	½		BTS-100K	Discriminator Diode Load
R53	10Meg 20%	½		BTS-10Meg	AF Amp. Grid
R54	330KΩ 20%	½		BTS-330K	AF Amp. Plate
R55	82KΩ	½		BTS-82K	Output Grid
R56	180KΩ 20%	½		BTS-180K	Output Grid
R57	330KΩ 20%	½		BTS-330K	Voltage Divider
R58	500Ω	5		1 3/4A-500	Output Decoupling - Wire Wound
R59	470KΩ 20%	½		BTS-470K	Isolation
R60	2.2Meg 20%	½		BTS-2.2Meg	Sync Separator Grid
R61	220KΩ	½		BTS-220K	Sync Separator Plate
R62	3300Ω 20%	½		BTS-3300	Sync Amp. Cathode
R63	8200Ω 20%	2		BTS-8200	Sync Amp. Plate
R64	56KΩ	½		BTS-56K	Integrator Network
R65	56KΩ	½		BTS-56K	Integrator Network
R66	56KΩ	½		BTS-56K	Integrator Network
R67	100KΩ	½		BTS-100K	Vert. Feedback
R68	470KΩ	½		BTS-470K	Vert. Osc. Grid
R69	820KΩ	½		BTS-820K	Vert. Osc. Plate
R70	10KΩ	½		BTS-10K	Vert. Peaking
R71	560Ω	½		BTS-560	Vert. Output Cathode
R72	820KΩ	½		BTS-820K	Vert. Output Grid
R73	560KΩ 5%	½		BTS-560K 5%	Horiz. AFC Grid
R74	180KΩ	½		BTS-180K	Horiz. AFC Cathode
R75	100KΩ	1		BTA-100K	Horiz. AFC Cathode
R76	8200Ω 20%	½		BTS-8200	Horiz. AFC Filter
R77	120KΩ	½		BTS-120K	Voltage Divider
R78	220KΩ	½		BTS-220K	Voltage Divider
R79	3.3Meg	1		BTA-3.3Meg	Voltage Divider
R80	100KΩ	1		BTA-100K	Horiz. Osc. Grid
R81	22KΩ	1		BTA-22K	Horiz. Osc. Plate
R82	10KΩ	½		BTS-10K	Horiz. Osc. Transformer Shunt
R83	22KΩ 20%	½		BTS-22K	Horiz. Osc. Transformer Shunt
R84	150KΩ	½		BTS-150K	Horiz. Feedback
R86	47Ω 20%	½			Parasitic Suppressor
R86	1Meg 20%	½		BTS-1Meg	Horiz. Output Grid
R87	47Ω 20%	½			Parasitic Suppressor
R88	3000Ω	2			Horiz. Output Screen
R89	6800Ω	½		BTS-6800	Linearity Coil Shunt
R90	1Meg	1			H.V. Filter
R91	130Ω	5		1 3/4A-125	Focus Coil Shunt - Wire Wound
R92	68Ω	2			Voltage Divider
R93A	1500Ω	3			Bleeder - Wire Wound - See Note 1
B	15KΩ	10			Bleeder - Wire Wound
R94	300Ω	25			Voltage Divider - Wire Wound - See Note 2

Note 1. Not used in all Models
Note 2. On sets using P.M. focusing R94 replaces R7, R91 & T5.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Ambassador PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC	270VCT	5VAC	6.3VAC					R-36B
	②2.24A	③.270 ADC	③3A	③8.7A					
				SEC. 4					
				6.3VAC					
				③1.1A					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Ambassador PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	570Ω	10Ω tap ②.7Ω, 7.2Ω			HV0-7			Horiz. Output Trans.
	tap ②							
	63Ω	SEC. 2 0Ω						
T3	1.2K			A-8140 ①		TSO-6 ①	A-103X	Vert. Output Trans.
	tap ②							
	12Ω							
T4A	15Ω			DY-9	MDF-70	TY-2	Y-12	Horiz. Deflection Coils
B	58Ω							Vert. Deflection Coils
T5	420Ω			FC11 ②			B-470-R	Focus Coil

① Drill new mtg. holes
② Fabricate new mtg. bracket or use original focus coil housing.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Ambassador PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T6	4.5KΩ	3.2Ω	300Ω	.7Ω		A-3825 ③	A-2930	R0-8	S-3X	④ Drill one new mtg hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	Ambassador PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	P.M.	3.2Ω		Mod. P8-V ST-116	8A31	
	CONE DIA.	V. C. DIA.				
SP1B	8"	3/4"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	Ambassador PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
L1	.270A	50Ω	1.5 Henries		C-2326 ①	C-2991 ①	TR-3300 ①	C-23X	

① Drill one new mtg. hole

COILS (RF-IF)

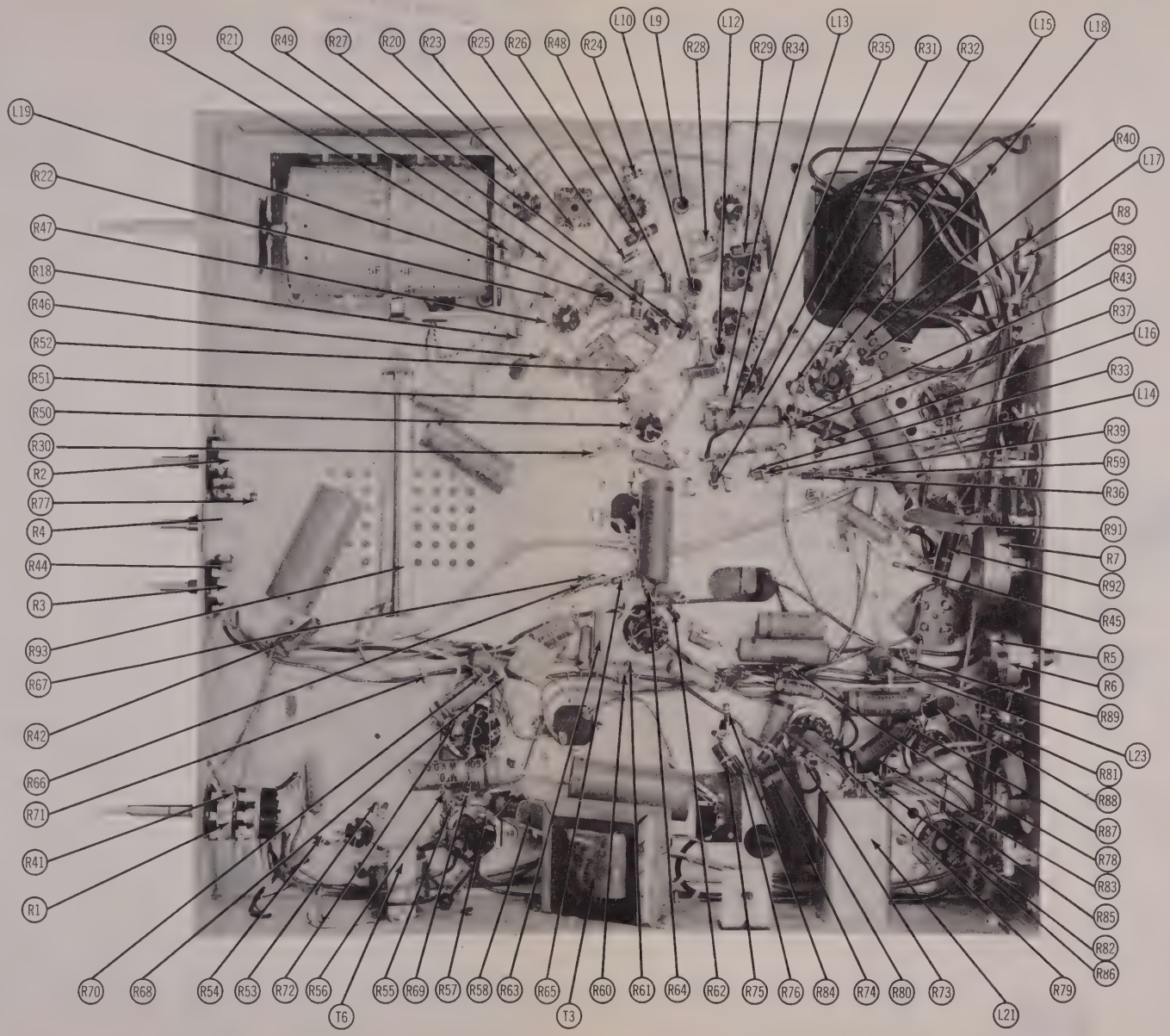
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Ambassador PART No.	MERIT PART No.	
L2	Ant. Coil	0Ω				
L3	Fil. Choke	0Ω				
L4	RF, Mixer Grid & Osc. Coils	0Ω				
L5	Fil. Choke	0Ω				
L6	1st. Video IF	1.2Ω				
L7	Fil. Choke					Not used in some models
L8	2nd. Video IF	.2Ω	0Ω			Includes sound take-off
L9	3rd. Video IF	.3Ω				
L10	21.25MC Trap	0Ω			TV-150	
L11	4th. Video IF	.2Ω				Includes sound take-off
L12	4.5MC Trap	2Ω			TV-151	
L13	Peaking Coil	5.2Ω			TV-182	120 Microhenries, wound on 22KΩ resistor
L14	Peaking Coil	7.3Ω			TV-185	250 Microhenries
L15	Peaking Coil	5.2Ω			TV-182	120 Microhenries wound on 22KΩ resistor
L16	Peaking Coil	4.7Ω			TV-181	93 Microhenries
L17	Peaking Coil	5.2Ω			TV-182	120 Microhenries wound 22KΩ resistor
L18	Peaking Coil	4.1Ω			TV-181	93 Microhenries
L19	Sound IF	.2Ω				
L20	Discr. Trans.	.2Ω	.2Ω		TV-106	Tap ⓐ .1Ω
L21	Horiz. Osc.	78Ω	46Ω		TV-162	Tap ⓐ 22Ω
L22	Width Coil	.6Ω			MWC-2	
L23	Horiz. Lin.	36Ω			MWC-1	

FUSES

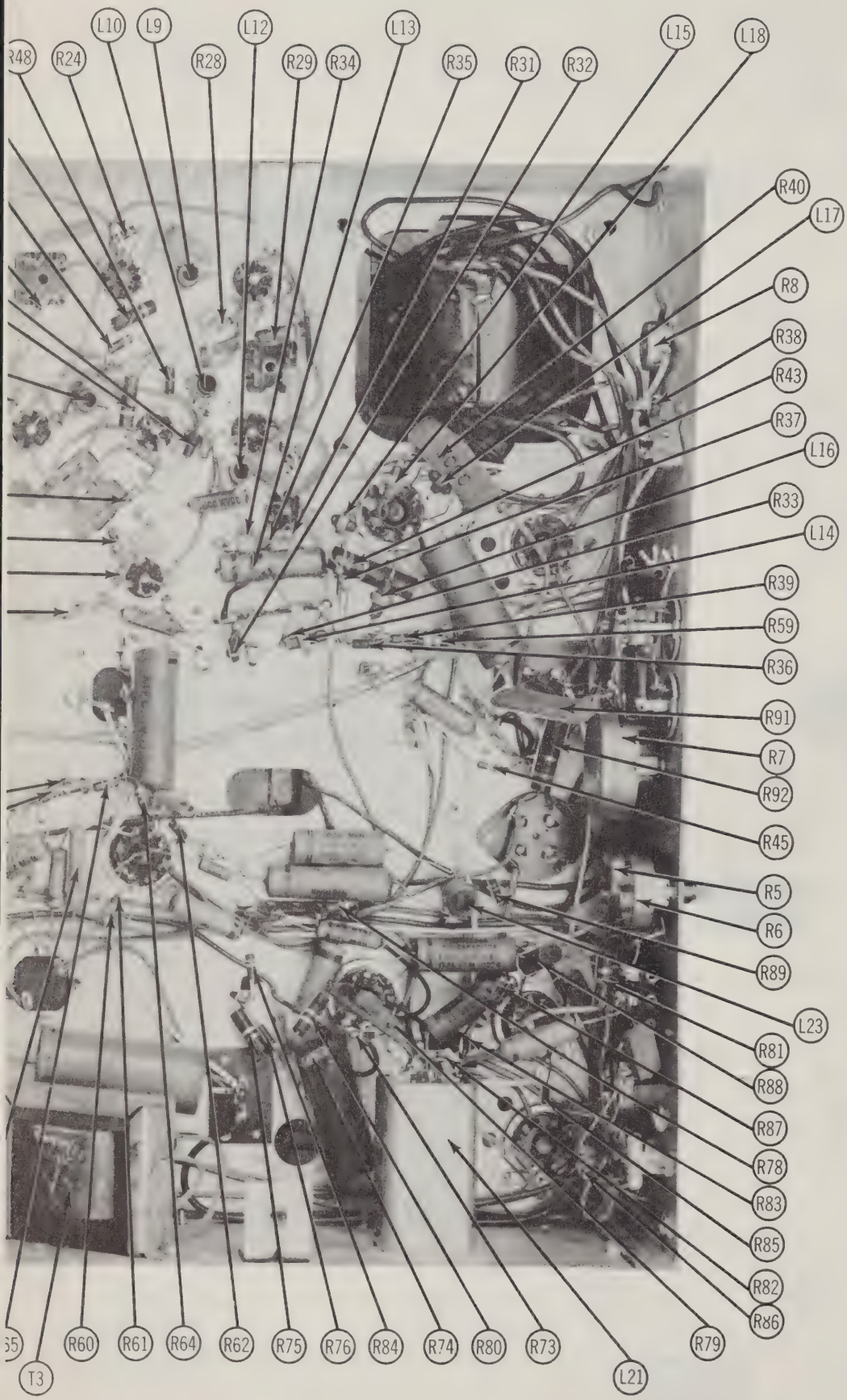
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Ambassador PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	GJV	1/4 A. 250 V.			318.250 (3AG-P/T)		GJV 1/4	

MISCELLANEOUS

ITEM No.	PART NAME	Ambassador PART No.	NOTES
M2	RF Tuner		
M3	Switch		Black-White & Color
M4	Switch		TV-Phono
M5	Ion Trap		
B4	Trimmer		(Dual) Horiz. Drive & Horiz. Lock (50-360MMF)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



STOR AND INDUCTOR IDENTIFICATION

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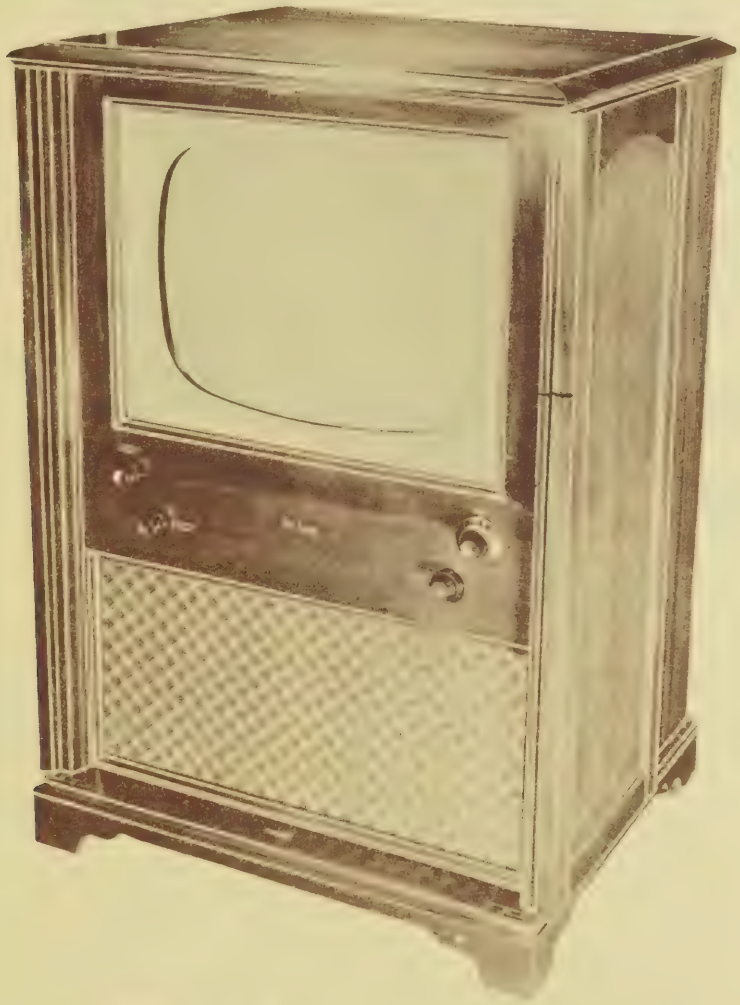

MODEL 2C-VL20

ANDREA
MODEL 2C-VL20 (Ch. VL20)

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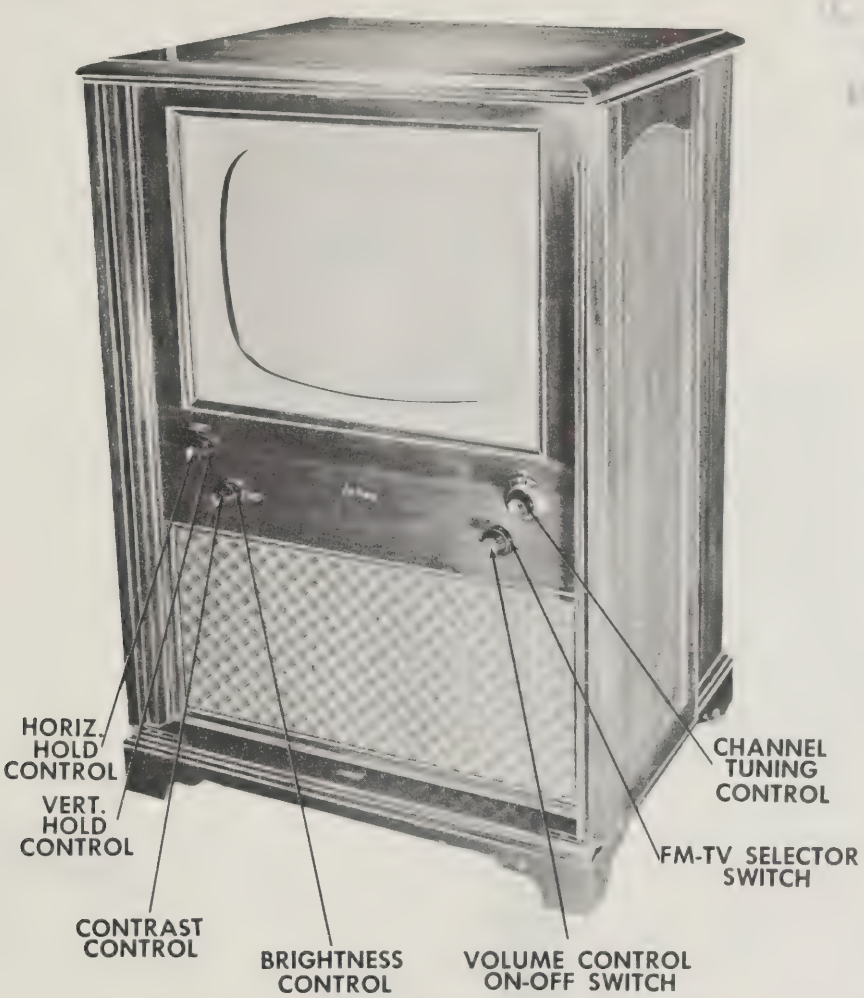
MODEL 2C-VL20 (Ch. VL20)



ANDREA
MODEL 2C-VL20 (Ch. VL20)

TRADE NAME	Andrea Model 2C-VL20 (Ch. VL20)
MANUFACTURER	Andrea Radio Corp., 27-01 Bridge Plaza North, Long Island City, N. Y.
TYPE SET	FM - Televison Receiver
TUBES	Twenty-Four

POWER SUPPLY 110-120 Volts AC - 60 Cycle RATING 1.95 Amp. @ 117 Volts AC
TUNING RANGE—(TV) Channels 2 thru 13 Continuous Tuning (FM)88-108MC

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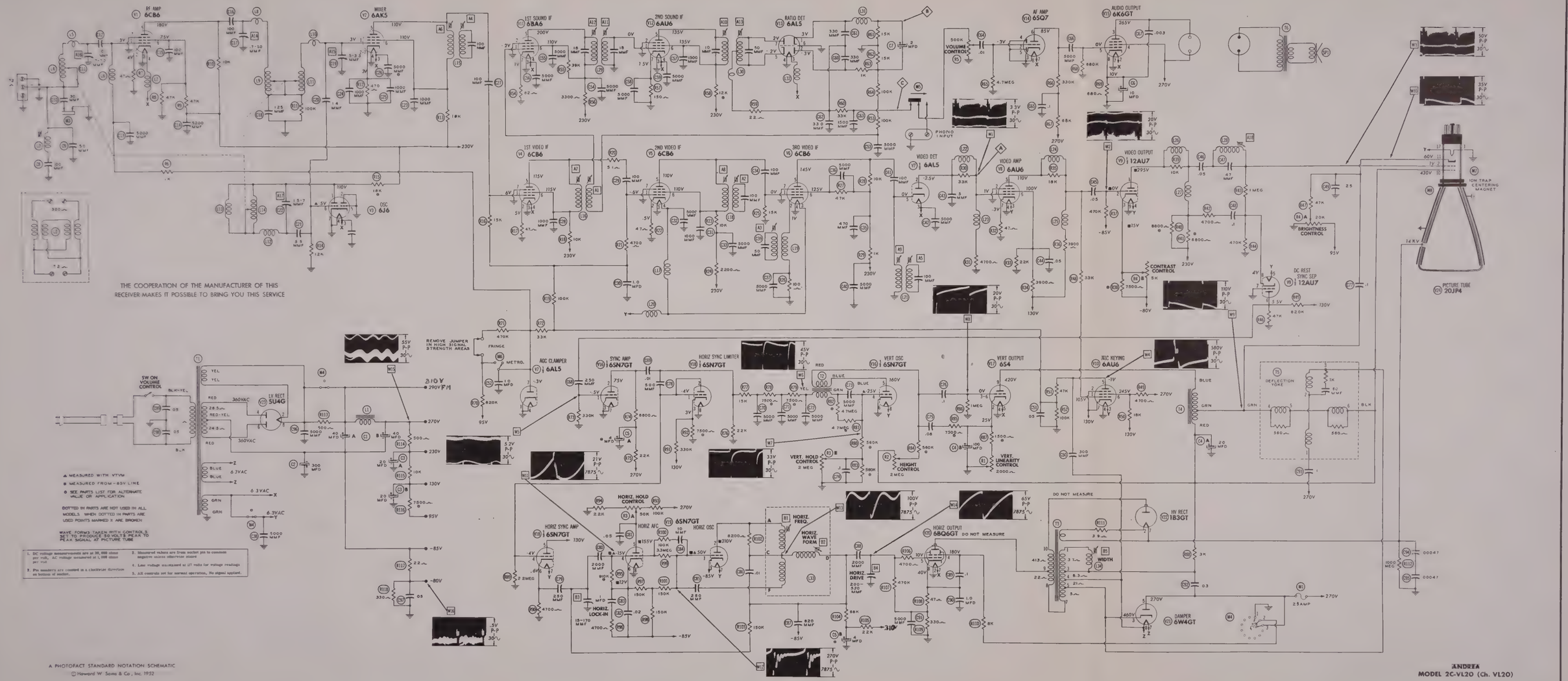
RF AMP 6CB6
MIXER 6AK5
1ST SOUND IF 6BA6
2ND SOUND IF 6AU6
RATIO DET 6AL5
AF AMP 6SQ7
AUDIO OUTPUT 6K6GT
1ST VIDEO IF 6CB6
2ND VIDEO IF 6CB6
3RD VIDEO IF 6CB6
VIDEO DET 6AL5
VIDEO AMP 6AU6
VIDEO OUTPUT 12AU7
OSC 6J6
SYNC AMP 6SN7GT
HORIZ SYNC LIMITER 6SN7GT
VERT OSC 6SN7GT
VERT OUTPUT 654
AGC KEYING 6AU6
AGC CLAMPER 6AL5
HORIZ SYNC AMP 6SN7GT
HORIZ AFC 6SN7GT
HORIZ OSC 6SN7GT
HORIZ OUTPUT 6BQ6GT
DC REST SYNC SEP 12AU7
LV RECT 5U4G
HV RECT 1B3GT
DAMPER 6W4GT
PICTURE TUBE 20JP4
VOLUME CONTROL
PHONO INPUT
BRIGHTNESS CONTROL
CONTRAST CONTROL
HEIGHT CONTROL 2 MEG
VERT. LINEARITY CONTROL 2000
VERT. HOLD CONTROL 2 MEG
HORIZ. HOLD CONTROL 50K
HORIZ. FREQ.
HORIZ. WAVE FORM
HORIZ. DRIVE
HORIZ. LOCK-IN
WIDTH
DEFLECTION YOKE
ION TRAP CENTERING MAGNET
SW ON VOLUME CONTROL
REMOVE JUMPER IN HIGH SIGNAL STRENGTH AREAS
FRINGE
METRO.
DO NOT MEASURE
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
▲ MEASURED WITH VTVM
■ MEASURED FROM -85V LINE
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 80 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 30,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, No signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ANDREA
MODEL 2C-VL20 (Ch. VL20)

ANDREA
MODEL 2C-VL20 (Ch. VL20)

COURTESY OF
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CHASSIS TOP VIEW

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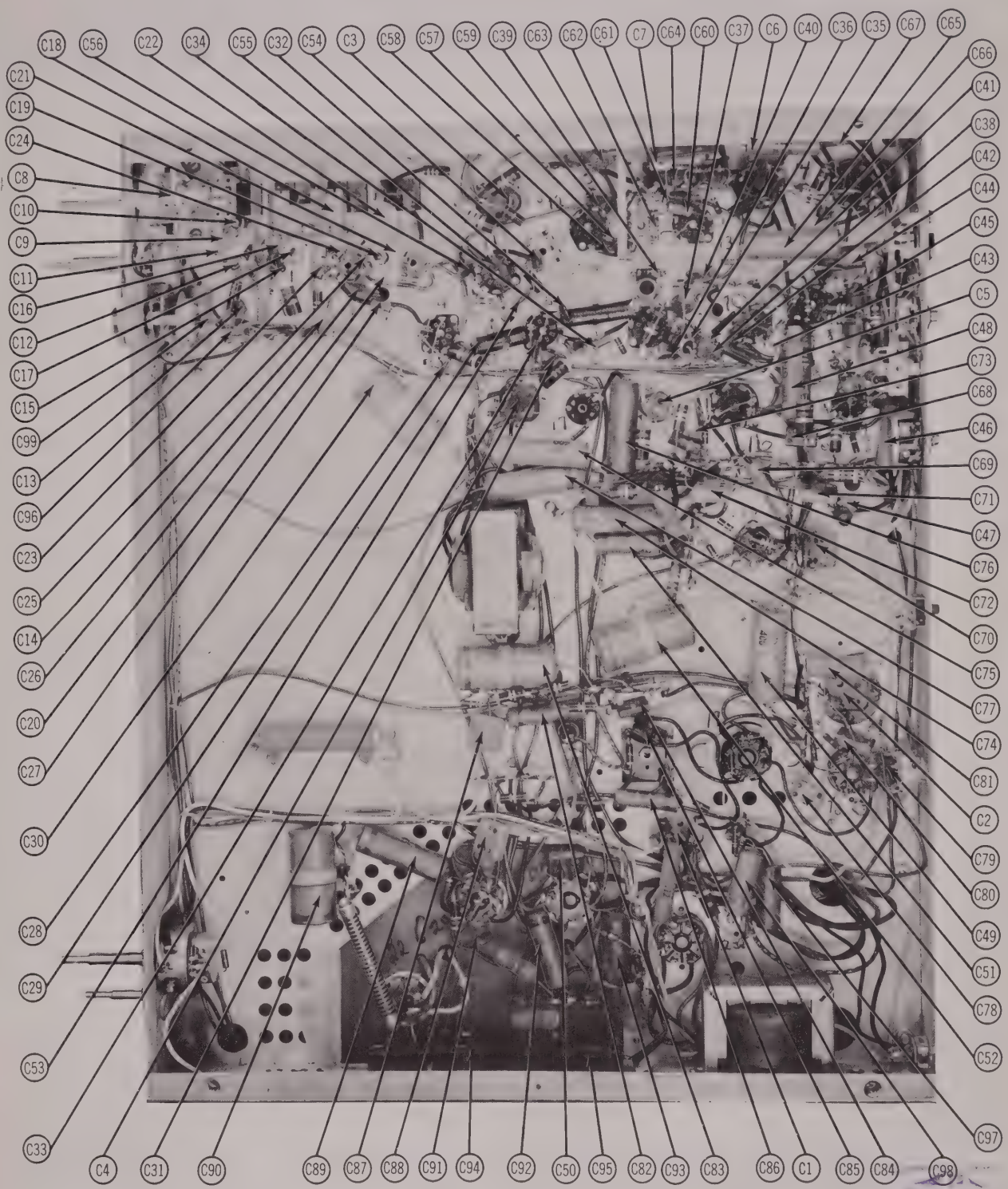
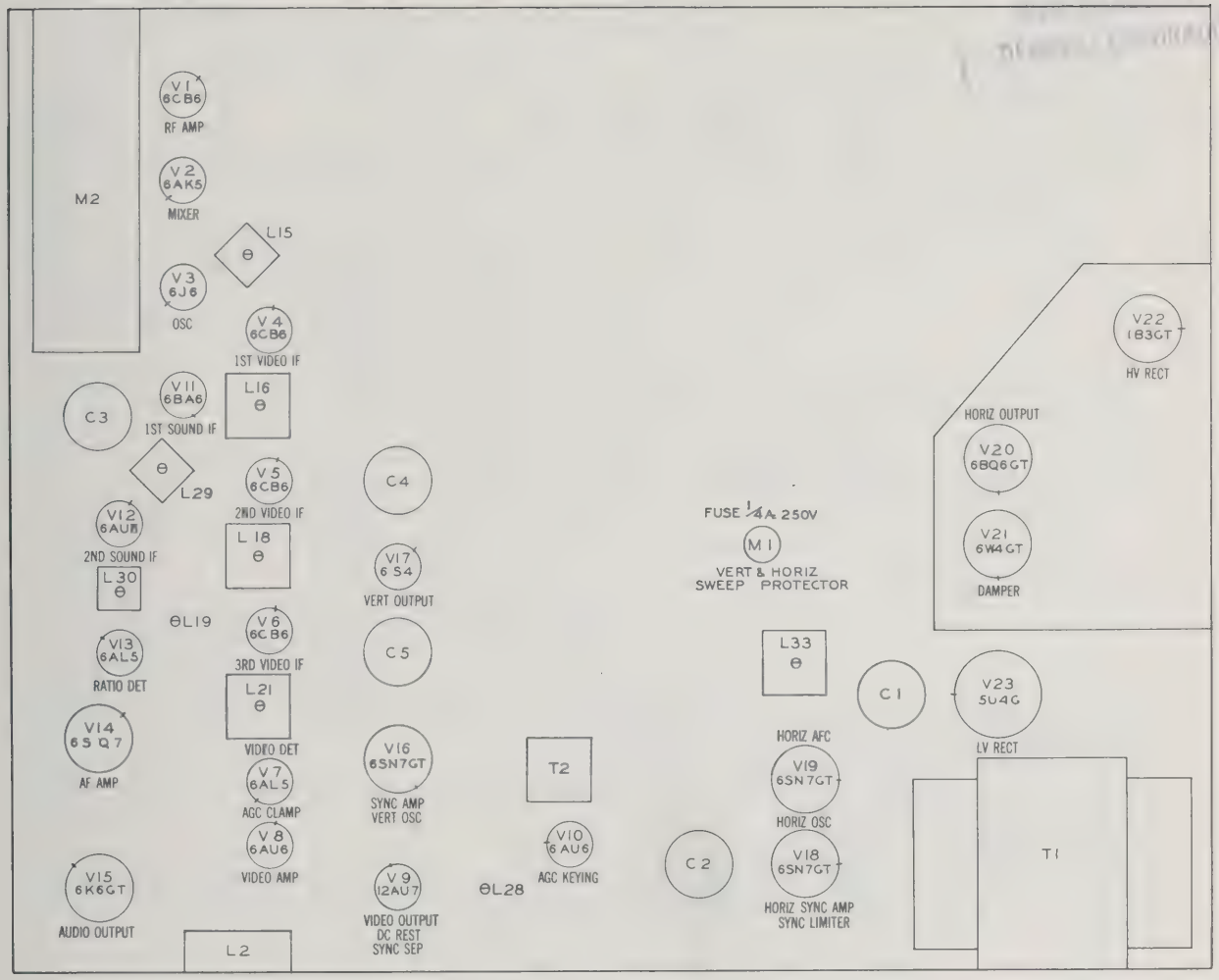
MODEL 2C-VL20 (Ch. VL20)



CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

ANDREA
MODEL 2C-VL20 (Ch. VL20)

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound - V23

LOSS OF PICTURE OR SOUND
No pic, No Sound, Has raster - V2, V3, V4
No pic, No Sound, Has raster - V1, V2, V3, V4
No pic, Has sound, Has raster - V5, V6, V7, V8, V9, V24
Has pic, No sound - V11, V12, V13, V14, V15
Overloaded picture - V7, V10

SYNC FAILURE
No Vert. sync - V16, V17
No Hor. Sync - V16, V18, V19
No Vert. or Hor. sync - V9, V16

SWEEP FAILURE
No raster, has sound - V19, V20, V21, V22, V24 Fuse (M1)
No Vertical deflection - V16, V17
Poor Vert. Linearity or foldover - V16, V17
Poor horiz. linearity or foldover - V19, V20, V21
Narrow picture - V19, V20, V21, V23
Vert. off freq. - V16, V17
Horiz. off Freq. - V18, V19

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard can be eliminated by removing the horizontal oscillator tube (V19).
Remove the oscillator tube (V3) from its socket to prevent erroneous indications.
To provide a source of variable bias during alignment, connect a 10,000 ohm control from B- to chassis and connect the rotor to the ungrounded side of C51.

VIDEO IF ALIGNMENT

Disconnect the end inductor L10.
Set the 10,000 Ω bias control to provide -5 Volts at the AGC line.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over mixer tube, (V2). Low side to chassis.	24MC (10MC Swp)	21.7MC	Any	Vert. amp. to point (A). Low side to chassis.	A1, A2, A3	Adjust for MINIMUM 21.7MC marker indication on response curve.
2.	"	"	"	27.7MC	"	"	A4, A5	Adjust for MINIMUM 27.7MC marker indication on response curve.
3.	"	"	"	21.7MC 23 MC 26.2MC 27.7MC	"	"	A6, A7, A8, A9	Adjust for response curve similar to fig. 1 The low frequency skirt is affected principally by A6, the high frequency skirt by A8 and the flatness of the center region by A7 and A9.

SOUND IF ALIGNMENT

Set the 10,000 Ω bias control for zero bias.
Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 1 (grid) of 6AU6 (V12). Low side to chassis.	21.7MC (450KC Swp)	21.7MC	Any	Vert. amp. to point (B). Low side to chassis.	A10	Disconnect stabilizer capacitor C7. Adjust for curve of maximum amplitude and symmetry as per fig. 2
5.	"	High side to pin 1 (grid) of 6BA6 (V11). Low side to chassis.	"	"	"	"	A11, A12	"
6.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A13	Reconnect capacitor C7. Adjust so that 21.7MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

RF TUNER ALIGNMENT

The RF Tuner portion of this receiver has been properly aligned at the factory and is very stable, alignment should not be attempted unless it is definitely known to be misaligned.
A signal Generator with an output of at least .5 volt is required to align this tuner.

RF AND MIXER ALIGNMENT

Remove the first video IF amplifier tube (V4) from its socket. Connect a 220Ω Resistor between pins 5 and 6 of mixer tube (V2).
Disconnect C12 from pin 1 of V1, and reconnect the end inductor L10.
Adjust the contrast control for maximum contrast.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	Across antenna terminals.	57MC (10MC Swp)	55.25MC 59.75MC	2	Vert. amp. to pin 5 of 6AK5 (V3). Low side to chassis.	A14, A15	Adjust for response curve similar to fig. 4.
8.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"	L8, L10	Adjust for response curve similar to fig. 5. Adjustment is made by unsoldering the junction of the crossed wires and changing the position of the junction. After adjustment resolder the junction.
9.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check all channels for response within the limits of figures 4 and 5. If necessary make compromise adjustments of A14, A15, L8 and L10.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

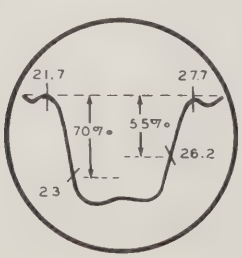


FIG.1

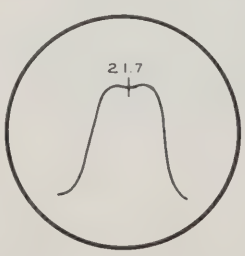


FIG.2

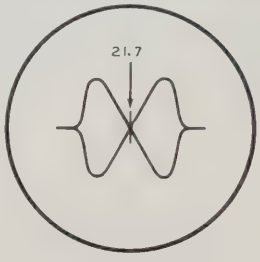


FIG.3

ALIGNMENT INSTRUCTIONS (CONT.)

ANTENNA ALIGNMENT

Reconnect C12 to pin 1 of V1.
Leave the 220Ω resistor between pins 5 and 6 of mixer tube (V2).
Connect the sweep generator through a 10 db. resistance attenuator having a characteristic impedance of 72 ohms.
Set the contrast control for maximum contrast.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	10 db attenuator (See instructions above)	Across antenna terminals.	57MC (10MC Swp)	55.25MC 59.75MC	2	Vert. amp. to pin 5 of 6AK5 (V3). Low side to chassis.	A16	Adjust for esponse curve similar to fig. 6.
11.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"	L5	Adjust as described in step 8 for response similar to fig. 7.
12.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check for response curves within the limit of figures 6 and 7.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10 MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

OSCILLATOR ALIGNMENT

To check dial setting turn the tuning shaft fully clockwise.
The index mark on the dial and the numeral "1" of "108MC" should both be in the 12 o'clock position.
Remove the 220 ohm resistor from pins 5 and 6 of V3.
Replace the oscillator and first video IF amplifier tubes in their sockets.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
13.	Direct	Across antenna terminals.	215.75MC (unmod.)	13	DC probe to Point ◇C. Common to chassis.	L12	Expand or compress coil for zero deflection on VTVM. A positive or negative reading will be obtained on either side of correct setting.
14.	"	"	59.75MC	2	"	A17	Adjust for zero deflection. A positive or negative reading will be obtained on either side of correct setting. Repeat steps 13 and 14 until no further improvement is noted.

4.5MC TRAP ADJUSTMENT

With the receiver aligned and operating, tune in a TV station and view the screen for evidence of any 4.5MC interference. Adjust A18 for minimum 4.5MC interference.

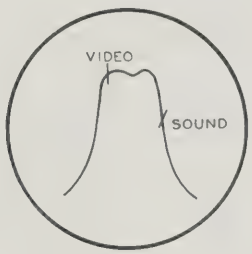


FIG. 4

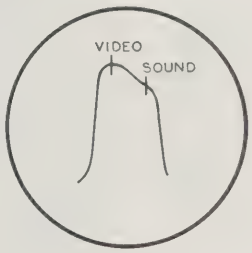


FIG. 5

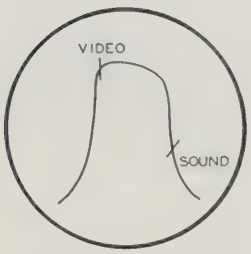


FIG. 6

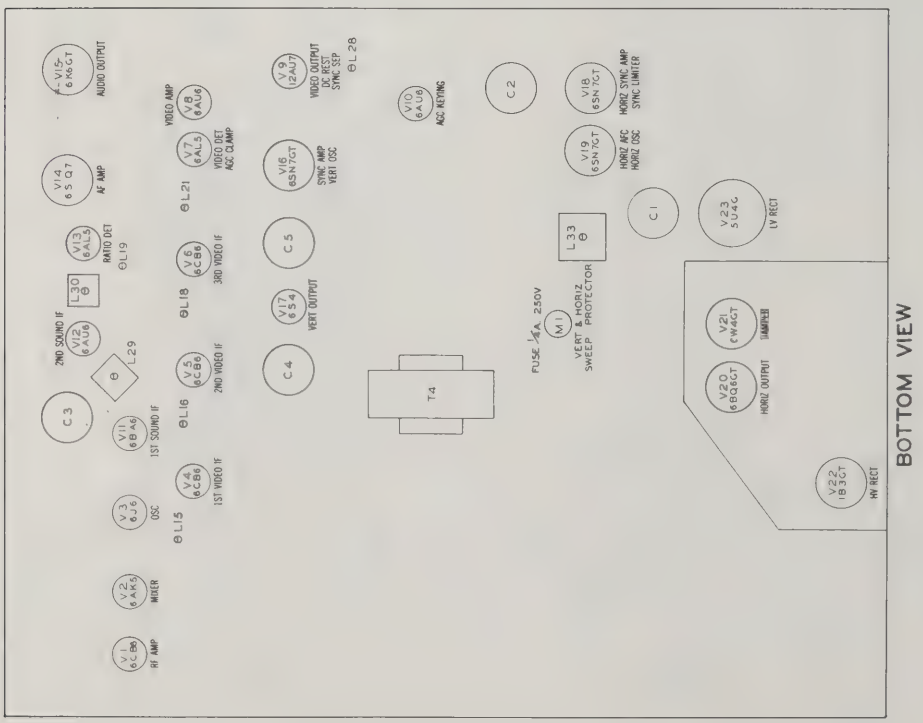
FIG. 7

RESISTANCE MEASUREMENTS

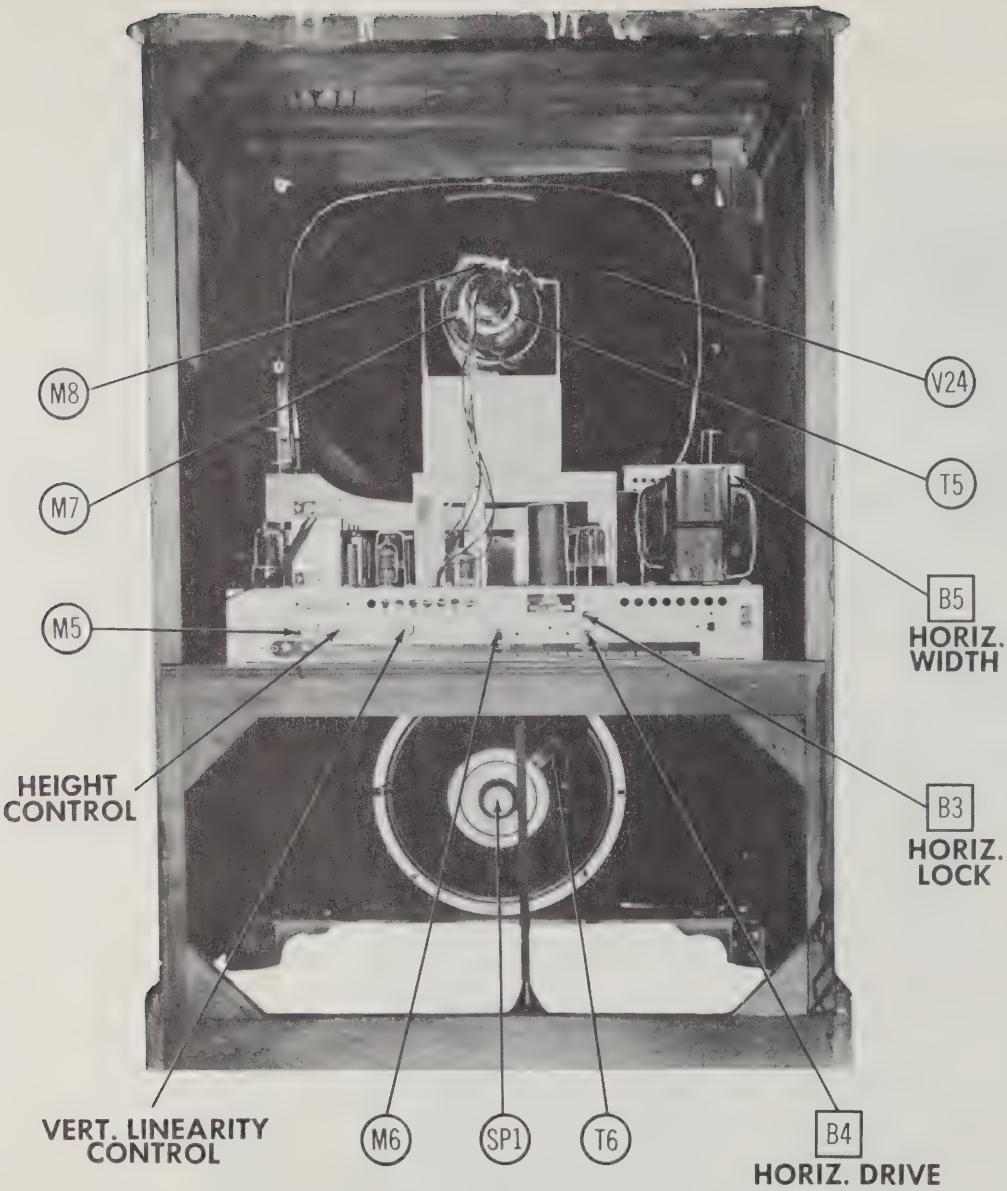
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	135KΩ	47Ω	0Ω	1.2Ω	†10KΩ	23KΩ	0Ω		
V 2	6AK5	100KΩ	470Ω	.1Ω	0Ω	†18KΩ	†18KΩ	470Ω		
V 3	6J6	†18KΩ	0Ω	.1Ω	0Ω	0Ω	12KΩ	0Ω		
V 4	6CB6	215KΩ	47Ω	0Ω	.1Ω	†10KΩ	†10KΩ	0Ω		
V 5	6CB6	205KΩ	47Ω	0Ω	.1Ω	†13KΩ	†13KΩ	0Ω		
V 6	6CB6	15KΩ	100Ω	.1Ω	0Ω	†11KΩ	†48KΩ	0Ω		
V 7	6AL5	0Ω	4.7KΩ	.1Ω	0Ω	.2Ω	0Ω	130KΩ		
V 8	6AU6	4.7KΩ	0Ω	.1Ω	0Ω	†10KΩ	†9.5KΩ	47Ω		
V 9	12AU7	†4KΩ	■470KΩ	■1.7KΩ	.1Ω	.1Ω	47KΩ	0Ω	470KΩ	0Ω
V 10	6AU6	†40KΩ	†6K	.1Ω	0Ω	147KΩ	†4.7KΩ	†6K		
V 11	6BA6	215KΩ	0Ω	0Ω	.1Ω	†3.9KΩ	†40KΩ	82Ω		
V 12	6AU6	.2Ω	0Ω	0Ω	.1Ω	†13KΩ	†13KΩ	150Ω		
V 13	6AL5	15KΩ	16KΩ	.1Ω	0Ω	530KΩ	0Ω	530KΩ		
V 14	6SQ7	0Ω	4.7Meg	0Ω	0Ω	0Ω	†400KΩ	.1Ω	0Ω	
V 15	6K6GT	0Ω	.1Ω	†500Ω	†110Ω	680KΩ	†68KΩ	0Ω	680Ω	
V 16	6SN7GT	330KΩ	†29KΩ	0Ω	900KΩ	#900KΩ	0Ω	0Ω	.1Ω	
V 17	6S4	INF	2.7KΩ	1Meg	0Ω	.1Ω	1Meg	INF	INF	#4.5KΩ
V 18	6SN7GT	2.2Meg	2.2Meg	7.5KΩ	2.2Meg	†6KΩ	4.7KΩ	.1Ω	0Ω	
V 19	6SN7GT	■300KΩ	†90KΩ	■0Ω	■950KΩ	40KΩ	■300KΩ	.1Ω	0Ω	
V 20	6BQ6GT	INF	0Ω	330Ω	†8KΩ	475KΩ	470KΩ	.1Ω	377Ω	TOP CAP #27Ω
V 21	6W4GT	†110Ω	INF	380KΩ	INF	†110Ω	130KΩ	#21Ω	#21Ω	
V 22	1B3GT	PINS 1 THRU 8 HAVE INF RESISTANCE								TOP CAP #440Ω
V 23	5U4G	INF	14KΩ	INF	■26Ω	INF	■24Ω	INF	14KΩ	
V 24	20JP4	0Ω	1.5Meg	PIN 10 #3KΩ	PIN 11 55KΩ	PIN 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
ANTENNA MATCHING SWITCH IN LO BAND POSITION
METRO-FRINGE SWITCH IN "METRO" POSITION
TV - FM SWITCH IN "TV" POSITION
† MEASURED FROM PIN 8 OF V23
# MEASURED FROM PIN 3 OF V21
■ MEASURED FROM -85VDC LINE


V15 6K6GT AUDIO OUTPUT
V14 6SQ7 AF AMP
V13 6AL5 RATIO DET
V12 6AU6 2ND SOUND IF
V11 6BA6 1ST SOUND IF
V3 6J6 OSC
V2 6AK5 MIXER
V1 6CB6 RF AMP
V8 6AU6 VIDEO AMP
V7 6AL5 VIDEO DET AGC CLAMP
V6 6CB6 3RD VIDEO IF
V5 6CB6 2ND VIDEO IF
V4 6CB6 1ST VIDEO IF
V9 12AU7 VIDEO OUTPUT AGC KEYER SYNC SEP
V16 6SN7GT SYNC AMP VERT OSC
V17 6S4 VERT OUTPUT
V10 6AU6 AGC KEYING
V18 6SN7GT HORIZ SYNC AMP SYNC LIMITER
V19 6SN7GT HORIZ AFC HORIZ OSC
V23 5U4G LV RECT
V21 6W4GT DAMPER
V20 6BQ6GT HORIZ OUTPUT
V22 1B3GT HV RECT
L30 L29 L18 L16 L15 L21 L28 L33
C1 C2 C3 C4 C5
T4
FUSE 1/4A 250V
M1 VERT & HORIZ SWEEP PROTECTOR
BOTTOM VIEW

TUBE PLACEMENT CHART



CABINET-REAR VIEW

DISASSEMBLY INSTRUCTIONS

1 - Remove 7 push on type and 1 set screw type control knobs from front Panel.

2 - Remove 10 wood screws. Remove rear cover.

3 - Disconnect built in Antenna and Speaker.

4 - Remove 4 Chassis bolts. Remove Chassis.

5 - Remove 4 Speaker Nuts. Remove Speaker.

NOTE. FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control to its mid-position.

Set the horizontal lock trimmer (B3) to 1/4 turn from extreme clockwise position.

Set the horizontal drive trimmer (B4) to 1/4 turn from extreme clockwise position.

Set the horizontal waveform adjustment (B2) to 3 turns from the extreme counter-clockwise position.

Set the horizontal frequency adjustment (B1) so that 1 inch of the screw protrudes from the can.

Connect the low capacity probe of an oscilloscope to terminal "C" of L33.

Adjust B2 until the broad and narrow peaks of the waveform on the oscilloscope are within 15% of equal height.

Adjust B1 until the picture synchronizes horizontally.

If the peaks of the waveform are not within 50% of equal height readjust B2 for that condition.

Adjust the width slug (B5) and the horizontal drive trimmer (B4) for picture of correct size.

Readjust B2 so that the broad and narrow peaks are of equal height as in fig. 8. If necessary keep the picture in sync with the horizontal hold control.

Set the horizontal hold control to its extreme clockwise position and adjust B1 until picture holds sync.

Rotate the horizontal hold control fully counter clockwise and momentarily interrupt the signal by turning to another channel and back again.

Turn the horizontal hold control slowly clockwise and note the least number of diagonal bars just before the picture pulls into sync. If less than 3 appear turn B3 counter-clockwise, if more than 3 are present turn B3 clockwise.

Retouch B2 so that the broad and narrow peaks are of equal height as in fig. 8 and repeat the pull-in check, adjusting B3 for 3 bars, if necessary.

The horizontal drive trimmer, B4, should not be adjusted unless a white bar appears in the center of the picture, or the picture fails to fill the mask.

If B4 is changed it may be necessary to retouch B 1.

Adjust B5 until the picture fills the mask horizontally.

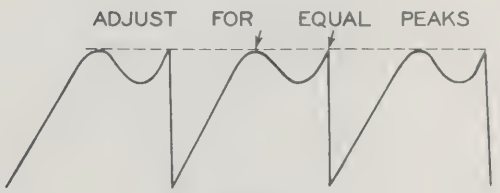
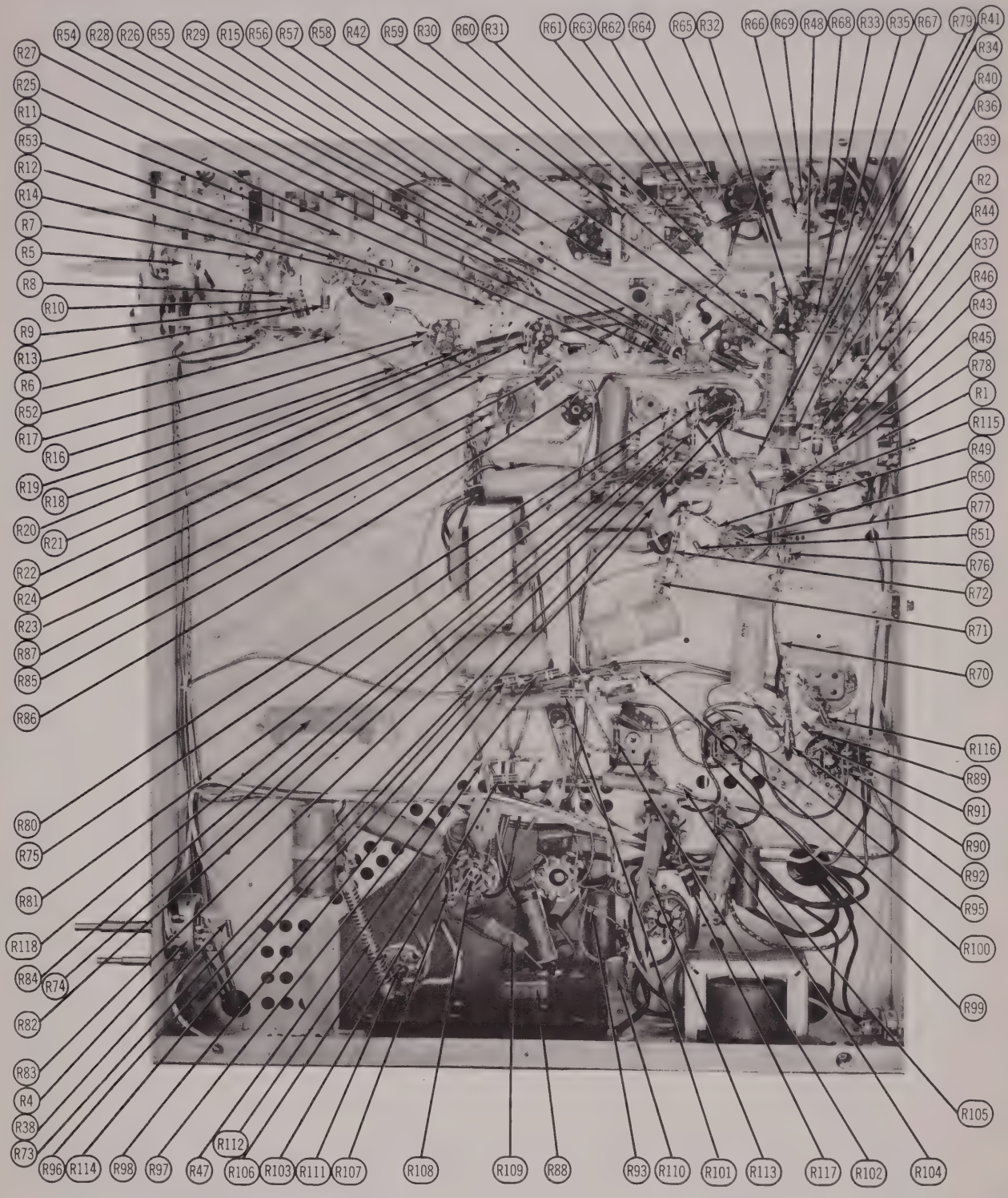


FIG. 8



CHASSIS - BOTTOM VIEW - RESISTOR IDENTIFICATION

CHASSIS BOTTOM VIEW- INDUCTOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ANDREA Part No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6CB6	6CB6	7CM	
V2	Mixer	6AK5	6AK5	7BK	
V3	Oscillator	6J6	6J6	7BF	
V4	1st. Video IF Amp.	6CB6	6CB6	7CM	
V5	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V6	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Detector-AGC Clamper	6AL5	6AL5	6BT	
V8	Video Amplifier	6AU6	6AU6	7BK	
V9	Video Output-DC Restorer-Sync Separator	12AU7	12AU7	9A	
V10	AGC Keying	6AU6	6AU6	7BK	
V11	1st. Sound IF Amp.	6BA6	6BA6	7BK	
V12	2nd. Sound IF Amp.	6AU6	6AU6	7BK	
V13	Ratio Detector	6AL5	6AL5	6BT	
V14	AF Amplifier	6SQ7	6SQ7	8Q	
V15	Audio Output	6K6GT	6K6GT	7S	
V16	Sync Amplifier-Vert. Oscillator	6SN7GT	6SN7GT	8BD	
V17	Vert. Output	6S4	6S4	9AC	
V18	Horiz. Sync. Amp. Horiz. Sync Limiter	6SN7GT	6SN7GT	8BD	
V19	Horiz. AFC -Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V20	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V21	Damper	6W4GT	6W4GT	4CG	
V22	HV Rectifier	1B3GT	1B3GT	3C	
V23	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: ANDREA Part No.	REPLACEMENT DATA: SYLVANIA Part No.	RTMA BASE TYPE	NOTES
24	20JP4		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ANDREA Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C1A	▲40	500	HCE-1310	AFH2-72	-	UP4450		FP288	TVL-2830	
B	▲40	500								
C2	300	100	HCC-1333	AFH2-22		UPE30015		FP119	TVL-1434	
C3A	▲20	450	HCE-1320	AFH4-20		UP2250		FP234	TVL-2755	
B	▲20	450								
C4A	▲20	450	HCE-1319	AFH2-93		UPT245-1010		FP255	TVL-2810	
B	▲100	100								
C5A	▼4	450	HCE-1318	AFH2-47		UPT4D45-		WP230.9	TVL-2750	Note #1 Note #1
B	▲4	450								
C6	10	25	HCE-1329	PR325/10		BR102A		TC22	TVA-1204	
C7	2	25	HCE-1331	PR150/4		BBR2-50		TC30	TVA-1201	
C8	100		HCC-1933	S1100N750	TCN-100		N750L-101	NT-531	5TCU-T1	
C9	50		HCC-1929				N750K-500			
C10	36		HCC-1934				N150K-300			
C11	.7-7.0		HCV-2119							
C12	10		HCC-1923	S110N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C13	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C14	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C15	100		HCC-1933	S1100N750	TCN-100		N750L-101	NT-531	5TCU-T1	
C16	100		HCC-1922-1	S1100N750	TCN-100		N750L-101	NT-531	5TCU-T1	
C17	.7-7.0		HCV-2119							
C18	125		HCE-1330							
C19	.5-3.3		HCV-2118							
C20	1.4		HCC-1931				N750K-1R4			
C21	5.5		HCC-1925				N750K-5R5			
C22	1.5-7		HCV-2116							
C23	1000		HCC-1938	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C24	1000		HCC-1938	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C25	1000		HCC-1938	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C26	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note #2
C27	100		HCC-1922-1	S1100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C28	1000		HCC-1932	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C29	100		HCC-1922-1	S1100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C30	1.3	100	HCT-1027-1	484-1.0		PJ2W1		TP422	2TM-M1	
C31	1000		HCC-1932	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C32	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C33	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C34	100		HCC-1922-1	S1100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C35	470		HCC-1935	S1470	D6-471	SR5T5	GP2K-471	UC-5347	5GA-T47	
C36	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C37	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C38	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C39	50		HCC-1926				N750K-500			
C40	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C41	100		HCC-1922-1	S1100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C42	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C43	5		HCC-1903	S15MP0	TC2-4.7		NP0K-050	ZT-555		
C44	.05	400	HCT-1003	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C45	.05	400	HCT-1003	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C46	.05	400	HCT-1003	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C47	47				TCZ-47		NP0L-470		5TCC-Q47	
C48	.1	600	HCT-1002	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C49	.25	400	HCT-1015	P488-25		PTE4P25		PT4025	4TM-P25	
C50	300	2000	HCM-1616-C2K							
C51	.05	400	HCT-1003	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C52	1.0	100	HCT-1027-1	484-1.0		PJ2W1		TP422	2TM-M1	
C53	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C54	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C55	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C56	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ANDREA Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C57	1500		HCC-1936	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C58	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C59	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C60	330		HCC-1937	S1330	D6-331	22R5T33	GP2K-331	UC-5333	5GA-T33	
C61	330		HCC-1937	S1330	D6-331	22R5T33	GP2K-331	UC-5333	5GA-T33	
C62	330		HCC-1937	S1330	D6-331	22R5T33	GP2K-331	UC-5333	5GA-T33	
C63	1500		HCC-1936	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C64	.01	400	HCT-1022	P488-01	D6-103	PTE4S1	GP2-333-103	PT401	4TM-S1	
C65	.1	600	HCT-1002	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C66	5000	500	HCM-1602-A	1467-005	D6-502	1D5D5	GP2-333-502	MC465	1FM-25	
C67	.003	1000	HCT-1021	P1088-003		PTE16D3		PT1623	MB-D3	
C68	250	500	HCM-1624C	1468-00025	D6-251	5W5T25	GP2K-251	MC240	1FM-325	
C69	.01	600	HCT-1008	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C70	5000	500	HCM-1602A	1467-005	D6-502	1D5D5	GP2-333-502	MC465	1FM-25	
C71	5000	500	HCM-1602A	1467-005	D6-502	1D5D5	GP2-333-502	MC465	1FM-25	
C72	5000	1000	HCM-1602AK			1WP10D5				
C73	5000	1000	HCM-1602AK			1WP10D5				
C74	.1	600	HCT-1002	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C75	.08	600	HCT-1029							
C76	.1	600	HCT-1002	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C77	.1	600	HCT-1002	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C78	500	500	HCM-1625A	1468-0005	D6-501	5W5T5	GP2K-501	MC245	1FM-35	
C79	250	500	HCM-1624C	1468-00025	D6-251	5W5T25	GP2K-251	MC240	1FM-325	
C80	2000	500	HCM-1606A	1467-002	D6-202	1W5D2	GP2-332-202	MC457	1FM-22	
C81	.05	400	HCT-1003	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C82	.02	600	HCT-1030	P688-02	DF-203	PTE6S2		PT613	6TM-S2	
C83	1.0	200	HCT-1027-1	484-1.0		PJ2W1		TP422	2TM-M1	
C84	10	500	HCM-1629A	1469-00001		5R5Q1		MCB240	MS-41	
C85	250	500	HCM-1624C	1469-00025		5R5T25		MCB240		
C86	.01	600	HCT-1008	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C87	820	500	HCM-1630A							
C88	2000	500	HCM-1606A	1467-002	D6-202	1W5D2	GP2-333-202	MC457	1FM-22	
C89	.1	600	HCT-1002	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C90	1.0	100	HCT-1027-1	484-1.0		PJ2W1		TP422	2TM-M1	
C91	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C92	.03	600	HCT-1032	P688-03		PTE6S3		PT613	6TM-S3	
C93	.1	600	HCT-1002	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C94	.00047	10000	HCH-2705	10084-0005		PTE100T5			TVM-351	
C95	.00047	10000	HCH-2705	10084-0005		PTE100T5			TVM-351	
C96	5000		HCC-1926	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C97	.05	400	HCT-1003	P488-05		PTE4S5		PT415	4TM-S5	
C98	.05	400	HCT-1003	P488-05		PTE4S5		PT415	4TM-S5	
C99	.05	400	HCT-1003	P488-05		PTE4S5		PT415	4TM-S5	

Note #1 For 50% opeation C5B is 20MFD (C5 Part No. become HCE-1315)
Note #2 Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ANDREA Part No.	IRC Part No.	CLAROSTAT Part No.	CENTRALAB Part No.	MALLORY Part No.	INSTALLATION NOTES
R1A	2000Ω	2	GRV-824	WK-2000	A43-2000	VK-131	R2500L	Vert. Linearity - Wire Wound
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R1A
R2A	2Meg	1/2	GRV-B12-1	QJ-139	AG-83-S	AN-75	SU-56	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R2A
R3A	50KΩ	1/2	GRV-831	QJ-79*	RTV-75		UF54L	Horiz. Hold-Panel
B	2 Meg	1/2					UR26L	Vert. Hold - Rear
R4A	20KΩ	4	GRV-834		RTV-300			Brightness - Wire Wound-Panel
B	5000Ω	1/2						Contrast - Rear
R5	500KΩ	1/2	GRV-830					Volume & SW

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B11-123 & P1-121 (Panel), B11-139 & R1-207 (Rear)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ANDREA Part No.	IRC Part No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R6	1000Ω	1/2	GRC-245	BTS-1000	AGC Network
R7	47Ω	1/2	GRC-211		RF Amp. Cathode
R8	47KΩ	1/2	GRC-207		Voltage Divider
R9	47KΩ	1/2	GRC-207		RF Amp. Screen
R10	10KΩ	2	GRC-267		RF Amp. Plate
R11	100KΩ	1/2	GRC-225		Mixer Grid
R12	470Ω	1/2	GRC-213	BTS-470	Mixer Cathode
R13	18KΩ 5%	1	GRC-308		Mixer Decoupling
R14	12KΩ	1/2	GRC-272		Osc. Grid
R15	18KΩ 5%	1/2			Osc. Plate - See Note 1
R16	15KΩ 5%	1/2	GRC-223		1st. Video IF Amp. Grid
R17	47Ω	1/2	GRC-211		1st. Video IF Amp. Cathode
R18	10KΩ	2	GRC-267		1st. Video IF Amp. Decoupling
R19	100KΩ 20%	1/2	GRC-225	BTS-100K	AGC Network
R20	5.1Ω 5%	1/2	GRC-292		Parasitic Suppressor - Wire Wound
R21	4700Ω 5%	1/2	GRC-273	BTS-4700 5%	2nd Video IF Amp. Grid
R22	47Ω	1/2	GRC-211		2nd Video IF Amp. Cathode
R23	10KΩ	2	GRC-267		2nd Video IF Amp. Decoupling
R24	2200Ω	1/2	GRC-219	BTS-2200	2nd Video IF Amp. Decoupling
R25	15KΩ 5%	1/2	GRC-223		3rd Video IF Amp. Grid
R26	100Ω	2	GRC-216		3rd Video IF Amp. Cathode
R27	47KΩ	1/2	GRC-207		3rd Video IF Amp. Screen
R28	10KΩ	2	GRC-267		3rd Video IF Amp. Plate
R29	1000Ω	1/2	GRC-245	BTS-1000	3rd Video IF Amp. Decoupling
R30	33KΩ	1/2	GRC-203	BTS-33K	Video Peaking Coil Shunt
R31	4700Ω 5%	1/2	GRC-273	BTS-4700 5%	Video Det. Diode Load
R32	47Ω	1/2	GRC-211		Video Amp. Cathode
R33	22KΩ	1	GRC-300	BTA-22K	Voltage Divider
R34	3900Ω	1	GRC-249	BTA-3900	Video Amp. Screen
R35	18KΩ	1/2	GRC-261	BTS-18K	Video Peaking Coil Shunt
R36	3900Ω	1	GRC-249	BTA-3900	Video Amp. Plate
R37	470KΩ 20%	1	GRC-228	BTA-470K	Video Output Grid
R38	7500Ω 5%	1/2		BTS-7500 5%	Contrast Control Shunt - See Note 2
R39	10KΩ	1/2	GRC-304	BTS-10K	Video Peaking Coil Shunt
R40	6800Ω	2		BTB-6800	Video Output Plate - See Note 3
R41	6800Ω	2		BTB-6800	Video Output Plate - See Note 4
R42	4700Ω 20%	1/2	GRC-205	BTS-4700	Isolation
R43	1Meg	1/2	GRC-274	BTS-1Meg	Picture Tube Grid
R44	470KΩ	1	GRC-228	BTA-470K	DC Restorer Cathode
R45	820KΩ	1/2	GRC-246	BTS-820K	DC Restorer Plate

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ANDREA Part No.	IRC Part No.	IDENTIFICATION CODES
R46	47KΩ	1/2	GRC-207	BTS-47K	Voltage Divider
R47	47KΩ	1/2	GRC-207	BTS-47K	Picture Tube Cathode
R48	33KΩ	1/2	GRC-203	BTS-33K	Isolation
R49	4700Ω	1/2	GRC-273	BTS-4700	Keyed AGC Screen
R50	18KΩ 5%	1	GRC-308	BTA-18K 5%	Bleeder
R51	47KΩ	1/2	GRC-207	BTS-47K	Keyed AGC Plate
R52	100KΩ 20%	1/2	GRC-258	BTS-100K	Voltage Divider
R53	100KΩ 20%	1/2	GRC-225	BTS-100K	AVC Network
R54	82Ω	1	GRC-215		1st Sound IF Amp. Cathode
R55	39KΩ	2	GRC-306		1st Sound IF Amp. Screen
R56	3300Ω	1	GRC-254	BTA-3300	1st Sound IF Amp. Plate Decoupling
R57	150Ω	1	GRC-202	BTA-150	2nd Sound IF Amp. Cathode
R58	12KΩ	2			2nd. Sound IF Amp. Decoupling - See Note 5
R59	22Ω	1	GRC-307		Balancing
R60	33KΩ	1/2	GRC-203	BTS-33K	De-emphasis
R61	15KΩ 5%	1/2	GRC-223	BTS-15K 5%	Ratio Det Diode Load
R62	15KΩ 5%	1/2	GRC-223	BTS-15K 5%	Ratio Det Diode Load
R63	1000Ω	1	GRC-245	BTS-1000	Balancing
R64	100KΩ 20%	1/2	GRC-225	BTS-100K	AVC Network
R65	4.7Meg 20%	1/2	GRC-242	BTS-4.7Meg	AF Amp. Grid
R66	330KΩ	2	GRC-301	BTS-330K	AF Amp. Plate
R67	68KΩ	1/2	GRC-204	BTS-68K	AF Amp. Decoupling
R68	680KΩ	1/2	GRC-302	BTS-680K	Output Grid
R69	68Ω	1	GRC-310	BTA-680	Output Cathode
R70	820KΩ	1/2	GRC-246	BTS-820K	AGC Network
R71	470KΩ	1/2	GRC-228	BTA-470K	AGC Network
R72	33KΩ	1/2	GRC-203	BTS-33K	AGC Network
R73	330KΩ	1/2	GRC-301	BTS-330K	Sync Amp. Grid
R74	6800Ω	2	GRC-257	BTB-6800	Sync Amp. Plate
R75	22KΩ	1	GRC-238	BTB-22K	Sync Amp. Plate Decoupling
R76	22KΩ	1	GRC-201	BTS-22K	Integrator Network
R77	15KΩ 5%	1	GRC-223	BTS-15K 5%	Integrator Network
R78	7500Ω 5%	1		BTS-7500 5%	Integrator Network - See Note 2
R79	7500Ω 5%	1		BTS-7500 5%	Integrator Network - See Note 2
R80	560KΩ	1		BTA-560K	Vert. Osc. Grid - See Note 6
R81	4.7Meg 20%	1/2	GRC-242	BTS-4.7Meg	Vert. Osc. Grid - See Note 4
R82	4.7Meg 5%	1	GRC-242	BTS-4.7Meg 5%	Vert. Osc. Grid - See Note 4
R83	560KΩ	1		BTA-560K	Vert. Hold Control Shunt - See Note 6
R84	560KΩ	1		BTA-560K	Vert. Osc. Plate - See Note 6
R85	7500Ω 5%	1		BTS-7500 5%	Vert. Peaking - See Note 2
R86	1Meg	1/2	GRC-274	BTS-1Meg	Vert. Output Grid
R87	1500Ω	1/2		BTS-1500	Vert. Output Cathode - See Note 7
R88	3000Ω	5	GRW-510	1 3/4A-3000	Decoupling - Wire Wound
R89	2.2Meg 5%	1	GRC-230	BTS-2.2Meg 5%	Horiz. Sync Amp. Grid
R90	4700Ω	1	GRC-284	BTA-4700	Horiz. Sync Amp. Cathode
R91	330KΩ	1/2	GRC-301	BTS-330K	Horiz. Sync Amp. Plate
R92	7500Ω 5%	1/2		BTS-7500 5%	Horiz. Sync Limiter Cathode - See Note 2
R93	100KΩ	1/2	GRC-225	BTS-100K	Voltage Divider
R94	22KΩ	1/2	GRC-201	BTS-22K	Voltage Divider
R95	910KΩ 5%	1/2		BTS-910K 5%	Horiz. AFC Grid - See Note 8
R96	4700Ω	1/2	GRC-205	BTS-4700	Horiz. AFC Filter
R97	150KΩ 5%	1	GRC-243	BTA-150K 5%	Horiz. AFC Cathode
R98	150KΩ 5%	1	GRC-243	BTA-150K 5%	Horiz. AFC Cathode
R99	3.3Meg 20%	1/2	GRC-206	BTS-3.3Meg	Voltage Divider
R100	100KΩ 20%	1/2	GRC-225	BTS-100K	Horiz. Feedback
R101	150KΩ 5%	1	GRC-243	BTA-150K 5%	Horiz. Osc. Grid
R102	8200Ω	1/2	GRC-285	BTS-8200	Horiz. Osc. Transformer Shunt
R103	150KΩ 5%	1	GRC-243	BTA-150K 5%	Horiz. Feedback
R104	68KΩ	1/2	GRC-304	BTS-68K	Horiz. Osc. Plate
R105	22KΩ	1/2	GRC-201	BTS-22K	Horiz. Osc. Decoupling
R106	4700Ω	1/2	GRC-205		Parasitic Suppressor
R107	470KΩ 20%	1/2	GRC-228	BTA-470K	Horiz. Output Grid
R108	47Ω	1	GRC-207	BW-1-47	Horiz. Output Cathode
R109	330Ω	5	GRW-539	1 3/4A-350	Horiz. Output Cathode - Wire Wound
R110	8000Ω	5	GRW-537	1 3/4A-8000	Horiz. Output Screen - Wire Wound
R111	3.9Ω	1/2	GRC-378		HV Rectifier Filament - Wire Wound
R112	1000 Meg	3	GRC-813		Bleeder - Wire Wound
R113	500Ω	10	GRW-532	1 3/4A-500	Voltage Divider - Wire Wound
R114	500Ω	5	GRW-536	1 3/4A-500	Voltage Divider - Wire Wound
R115	10KΩ	2	GRC-267	BTB-10K	Voltage Divider
R116	7500Ω 5%	1		BTS-7500 5%	Voltage Divider - See Note 2
R117	22Ω	2	GRC-312		Bias Network
R118	330Ω	25	GRW-540		Bias Network - Wire Wound

Note 1. Some Models use a 22KΩ Resistor in this application
Note 2. Some Models use a 6800Ω Resistor in this application
Note 3. Some Models use a 3300Ω Resistor in this application
Note 4. Not used in all Models
Note 5. Some Models use a 15KΩ Resistor in this application
Note 6. Some Models use a 470KΩ Resistor in this application
Note 7. Some Models use a 2200Ω Resistor in this application
Note 8. Some Models use a 820KΩ Resistor in this application

SPEAKER

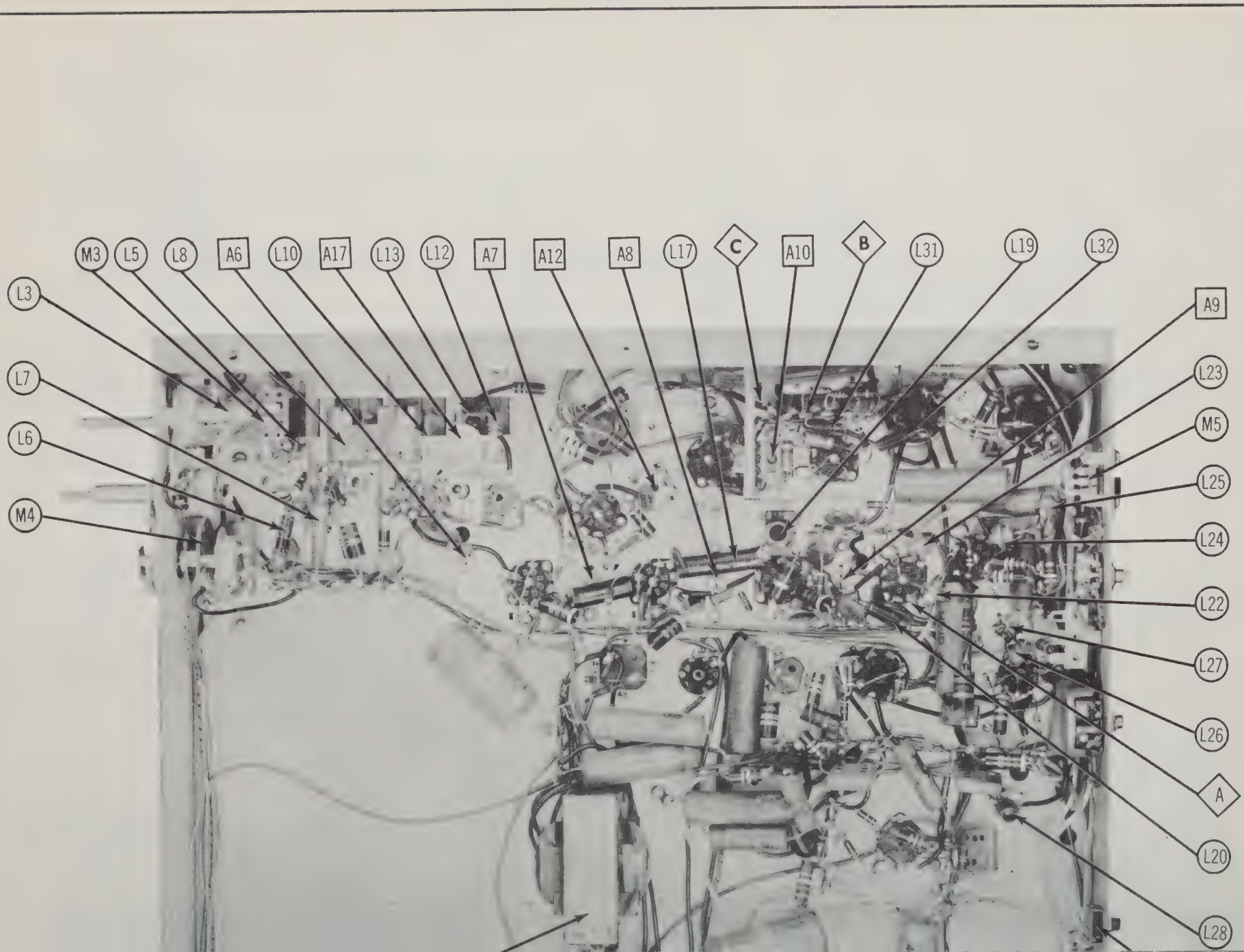
ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: ANDREA Part No.	JENSEN Part No.	QUAM Part No.	NOTES
SP1	12"	PM	3.5Ω	SL-4011		12A4A	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: ANDREA Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	TRIAD Part No.
T1	117VAC ④1.95A	720VCT ⑤.250ADC	5VAC ⑥ 3A	6.3VAC ⑦1.2A SEC. 4 6.3VAC ⑧ 8.5A	ST-3041	P-8170 ①	P-3169 ①	TP-355 ①	

① Drill new mtg. holes

PARTS LIST CONTINUED ON PAGE 18


M3
L5
L8
A6
L10
A17
L13
L12
A7
A12
A8
L17
C
A10
B
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L19
L32
A9
L3
L7
L6
M4
L23
M5
L25
L24
L22
L27
L26
A
L20
L28

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING		REPLACEMENT DATA					NOTES
	DC RESISTANCE		ANDREA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.						
T2	180Ω	970Ω		A-8122	A-4003	TBO-2	A-97Y	Vert. Osc. Trans.
T3	435Ω Tap ⓐ 22Ω	38Ω Tap ⓐ 3.7Ω, 12Ω, 33Ω	ST-3050					Horiz. Output Trans.
T4	1.5KΩ Tap ⓐ 4.2Ω		ST-3040	A-8141	A-3039		A-104X ①	Vert. Output Trans.
T5A	24Ω		ST-3049	DY-9	MDF-70	TY-3	Y-17	Horiz. Deflection Coils
B	46Ω							Vert. Deflection Coils

① Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		ANDREA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T6	6.3KΩ	3.5Ω	390Ω	.4Ω		A-3878 ①	A-2931 ①	RO-13	S9X ①	① Drill one new mtg. hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	ANDREA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.230ADC	110Ω	3.7 Henries	ST-3031	C-2326 ①	C-2991 ①	TR-3300 ①	C-15X ①

① Drill new mtg. holes

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	ANDREA PART No.	MERIT PART No.	IRC PART No.	
L2A	Ant. Matching Trans.	.6Ω	.6Ω	SUB-13			
B	Ant. Matching Trans.	.6Ω	.6Ω	SUB-13			Part of L2A
L3	Sound IF Trap	0Ω		SA-337			
L4	Ant. Coil	0Ω					
L5	Ant. End Inductor	0Ω					
L6	RF Choke	8.2Ω		SA-341		CL-1	10 Microhenries
L7	Fil. Choke	2Ω		SA-330		CL-1	3.3 Microhenries
L8	RF End Inductor	0Ω					
L9	RF Coil	0Ω					
L10	Mixer Grid End Inductor	0Ω					
L11	Mixer Grid	0Ω					
L12	Osc. End Inductor	0Ω		SA-318-1			
L13	Osc. Shunt	0Ω		SA-316			
L14	Osc. Coil	0.					
L15	1st Video IF	.2Ω		SA-331	* TV-100		Includes Trap
L16	2nd Video IF Sound Takeoff	.2Ω	.1Ω	SA-332	*TV-107		
L17	Fil. Choke	0Ω		SA-280			
L18	3rd Video IF	.2Ω		SA-333	*TV-101		Includes Trap
L19	Sound Trap	0Ω	0Ω	SA-287	TV-150		
L20	Fil. Choke	0Ω		SA-280			
L21	4th Video IF	.2Ω		SA-334	TV-100		Includes Trap
L22	Peaking Coil	7Ω		SA-284			
L23	Peaking Coil	6.6Ω		SA-285	TV-184		
L24	Peaking Coil	7Ω		SA-284			
L25	Peaking Coil	7Ω		SA-284			
L26	Peaking Coil	7Ω		SA-284			
L27	Peaking Coil	5.6Ω		SA-286	TV-184		
L28	4.5MC Trap	2.6Ω		SA-328	TV-151		
L29	Sound IF	.2Ω	.2Ω	SA-329	TV-104		
L30	Ratio Det.	.2Ω	.2Ω	SA-327	*TV-111		Tertiary Winding .1Ω
L31	Cath. Choke	.2Ω		SA-278			
L32	Fil. Choke	0Ω		SA-280			
L33	Horiz. Osc.	78Ω	45Ω	SA-335	TV-162		
L34	Width Coil	2.8Ω		SA-346			

* Drill new mtg. holes

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ANDREA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	AGC	1/4A. 250V.	FM-5189		312.250 (3AG)	342001	AGC 1/4	HKP

MISCELLANEOUS

ITEM No.	PART NAME	ANDREA PART No.	NOTES
M2	RF Tuner	FM-5203	
M3	Switch	FM-5198	Hi-Lo Antenna Matching
M4	Switch	FM-5224	TV-FM
M5	Switch	FM-5212	TV-Phono
M6	Switch	FM-5212	Metro-Fringe
M7	Centering Magnet	FM-5269	
M8	Ion Trap	FM-5137	
B3, B4	Trimmer	HCV-2120	Horiz. Drive 200-530MMF, Horiz. Lock 15-170MMF (Two Section)

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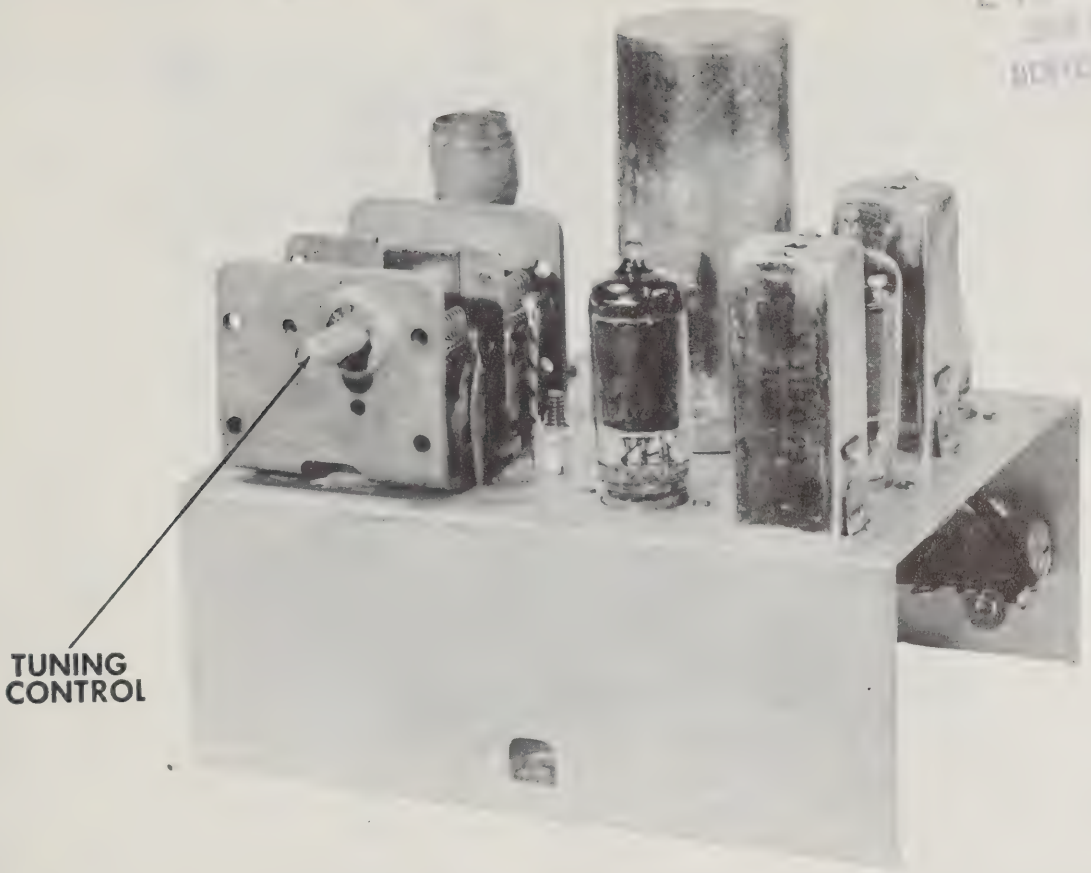
APPROVED ELECTRONICS
MODEL A-600AC



APPROVED ELECTRONICS
MODEL A-600AC

TRADE NAME	Approved Electronics Model A-600AC
MANUFACTURER	Approved Electronic Instrument Corp., 142 Liberty St., New York 6, N.Y.
TYPE SET	AC Operated AM Superheterodyne Tuner With Self-Contained Power Supply
TUBES (Four)	Types 6BE6 Conv., 6BA6 IF Amp., 6AT6 Det.-AVC-AF Amp., 7Y4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .3 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Connect tuner to audio amplifier for alignment purposes.
Preset A6 at maximum clockwise position.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Direct	High side to antenna connection (disconnect antenna hank.) Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	540 KC	Tuning gang fully closed	"	A5	"
3.	"	"	1600 KC	Tuning gang fully open	"	A6	Adjust for maximum output. Repeat steps 2 and 3 until no change is noted.
4.	"	"	1400 KC	Tune to 1400 KC signal	"	A7	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

APPROVED ELECTRONICS
MODEL A-600AC

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		Approved Electronics PART No.	STANDARD REPLACEMENT		
V1	Converter	6BE6	6BE6	7CH	
V2	IF Amplifier	6BA6	6BA6	7BK	
V3	Det. -AVC-AF Amp	6AT6	6AT6	7BT	
V4	Rectifier	7Y4	7Y4	5AB	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

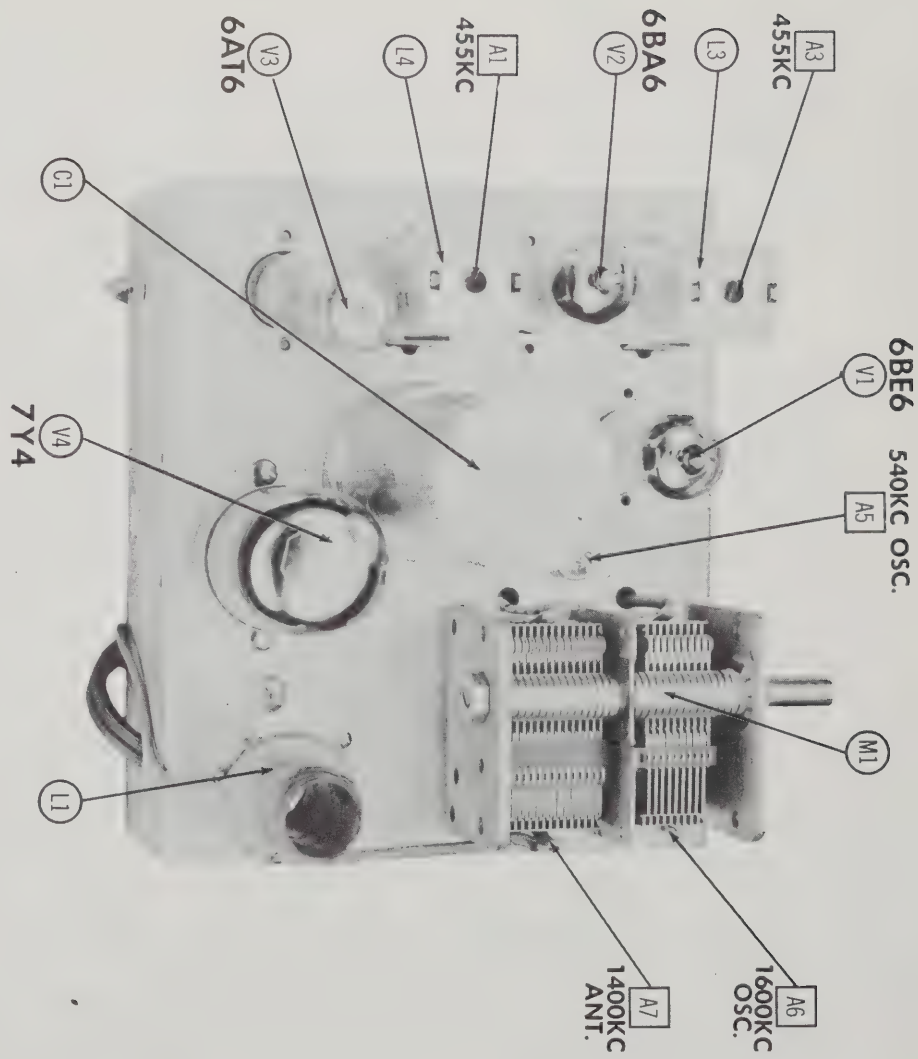
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Approved Electronics PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	▪40	475		AFH2-72		UPT4445		FP262	TVL-2830	
B	■15	350								Note 1
C	▲15	150								Note 1
D	20	25								Note 2
C2	47			SI47NP0	TCZ-47		NP0K-470		5TCC-Q47	
C3	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C4	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C5	47			SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C6	47			SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C7	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C8	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	

Note 1. Some models replace C2B and C2C with single section 20MFD
Note 2. Not used.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Approved Electronics PART No.	IRC PART No.	
R1	18KΩ	½		BTS-18K	Osc. Grid
R2	5600Ω	½		BTS-5600	Osc. Anode
R3	220Ω	½		BTS-220	IF Amp. Cathode
R4	2.2Meg	½		BTS-2.2Meg	AVC Network
R5	68KΩ	½		BTS-68K	Diode RF Filter
R6	5Meg	½			AF Amp. Grid
R7	100KΩ	½		BTS-100K	AF Amp. Plate
R8	250KΩ	½			Voltage Divider
R9	120KΩ	½		BTS-120K	Voltage Divider
R10	22KΩ	½		BTS-22K	Voltage Divider
R11	750Ω	½			Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	Approved Electronics PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ .3A	240VCT @ .015A	6.3VAC @ 1.35A		43T007-A				

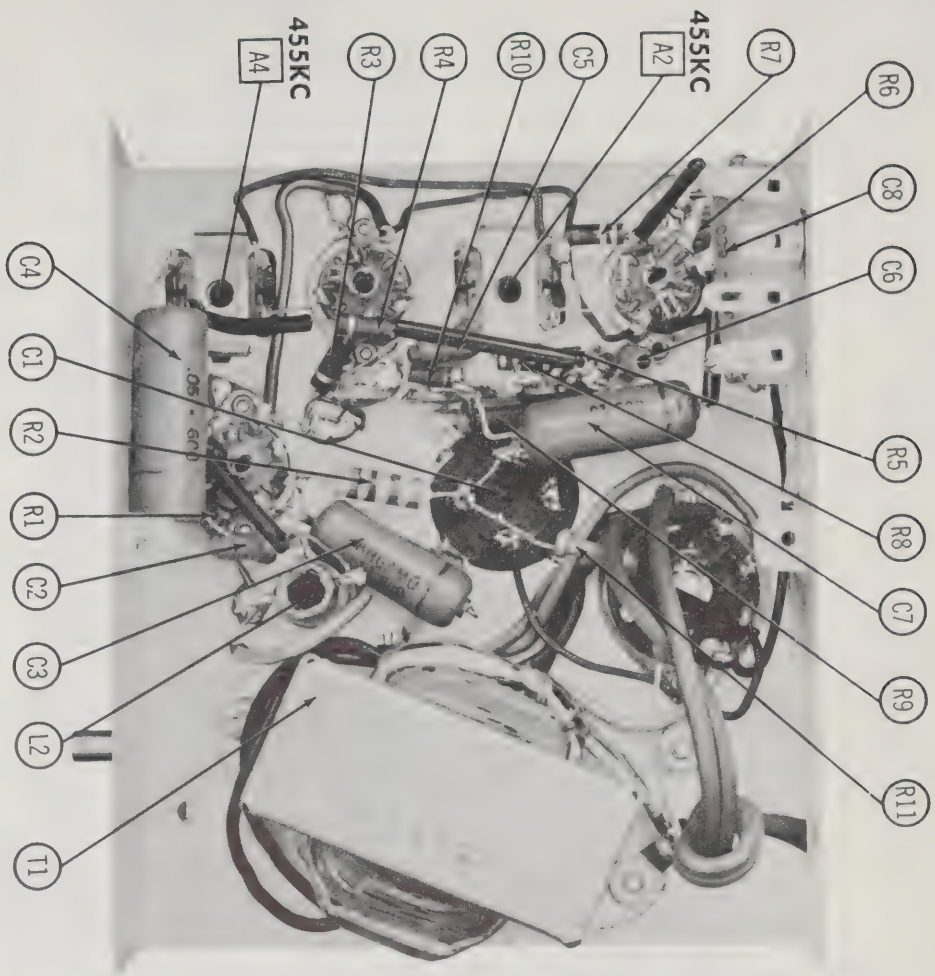
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Approved Electronics PART No.	MERIT PART No.	
L1	Ant. Coil	22.5Ω	5Ω			
L2	Osc. Coil	4.1Ω				Tap @ .4Ω
L3	Input IF	18Ω	18Ω			
L4	Output IF	18Ω	18Ω			

MISCELLANEOUS

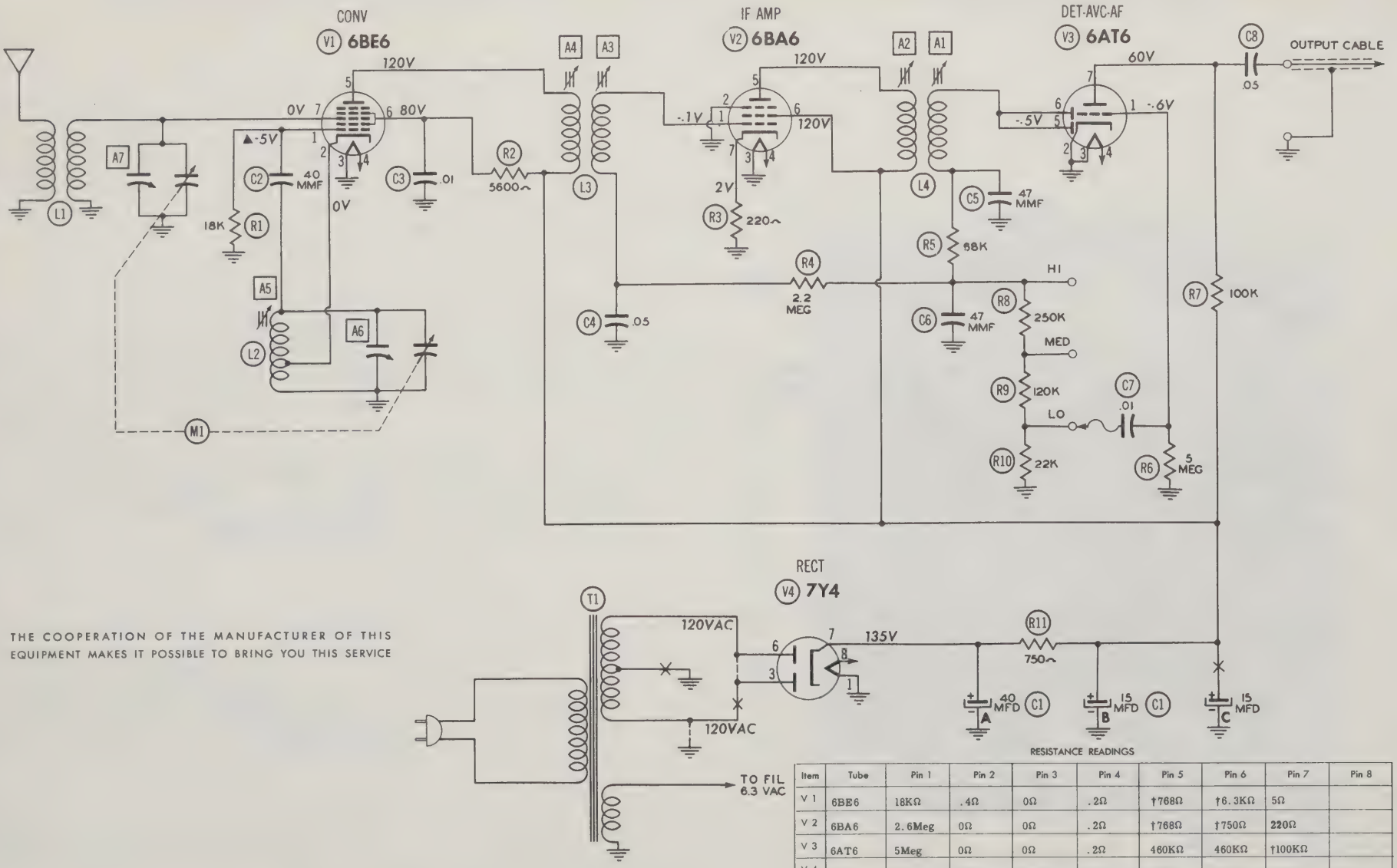
ITEM No.	PART NAME	Approved Electronics PART No.	NOTES
M1	2 gang var. cap.		(22-467MMF, 19-207MMF)

CHASSIS—BOTTOM VIEW



APPROVED ELECTRONICS
MODEL A-600AC

APPROVED ELECTRONICS
MODEL A-600AC



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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BE6	18KΩ	.4Ω	0Ω	.2Ω	†768Ω	†6.3KΩ	5Ω	
V 2	6BA6	2.6Meg	0Ω	0Ω	.2Ω	†768Ω	†750Ω	220Ω	
V 3	6AT6	5Meg	0Ω	0Ω	.2Ω	460KΩ	460KΩ	†100KΩ	
V 4	7Y4	0Ω	INF	160Ω	INF	INF	161Ω	80KΩ	.2Ω

†MEASURED FROM PIN 7 OF V4
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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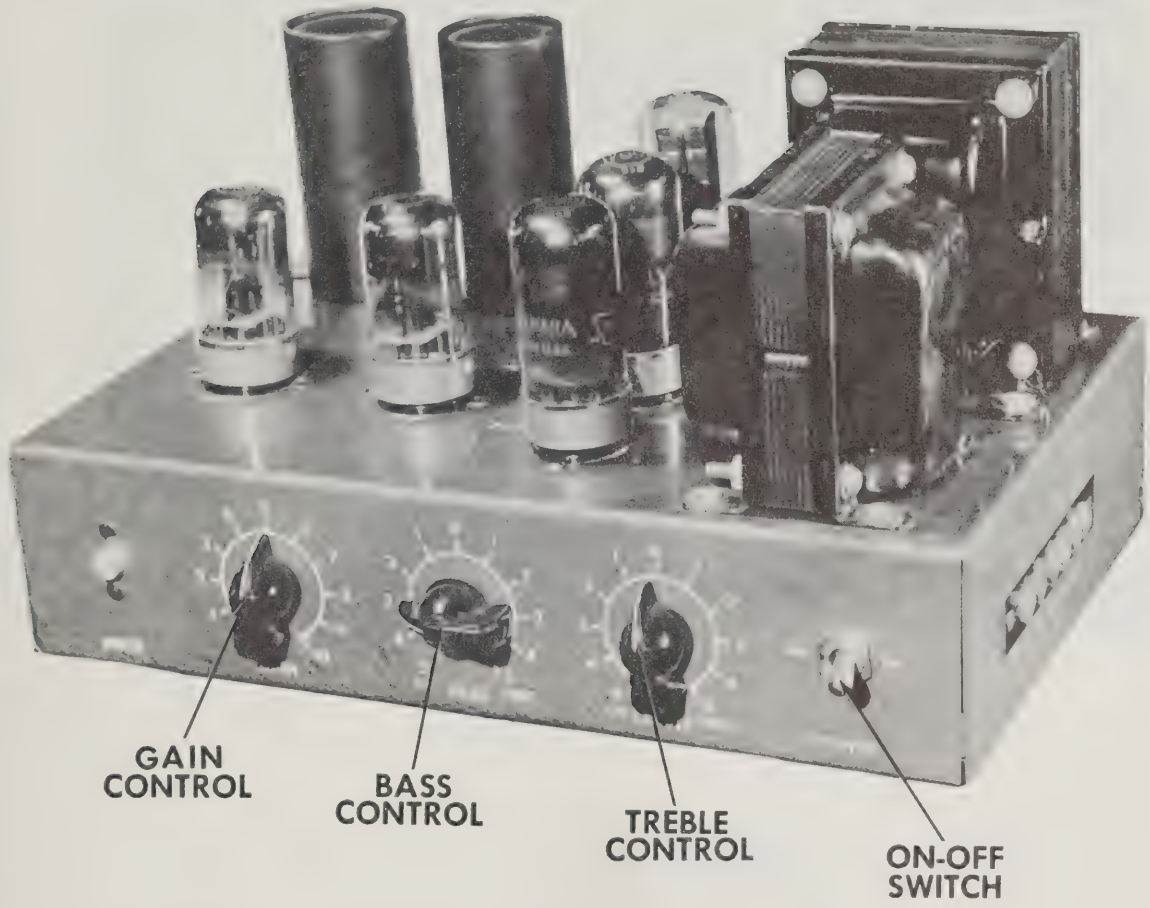
175-4

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

APPROVED ELECTRONICS
MODEL A-850



APPROVED ELECTRONICS
MODEL A-850

TRADE NAME	Approved Electronics Model A-850
MANUFACTURER	Approved Electronic Instrument Corp., 142 Liberty St., New York, N. Y.
TYPE SET	AC Operated Audio Amplifier
TUBES (FIVE)	Types 7F7 Pre Amp., 7F7 AF Amp.-Phase Inv., (2) 7C5 Audio Output, 5Y3GT Rectifier.
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .75 Amp. @ 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

APPROVED ELECTRONICS
MODEL A-850

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Approved Electronics PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Pre Amplifier	7F7	7F7	8AC	
V2	AF Amplifier-Phase Inverter	7F7	7F7	8AC	
V3	Audio Output	7C5	7C5	6AA	
V4	Audio Output	7C5	7C5	6AA	
V5	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

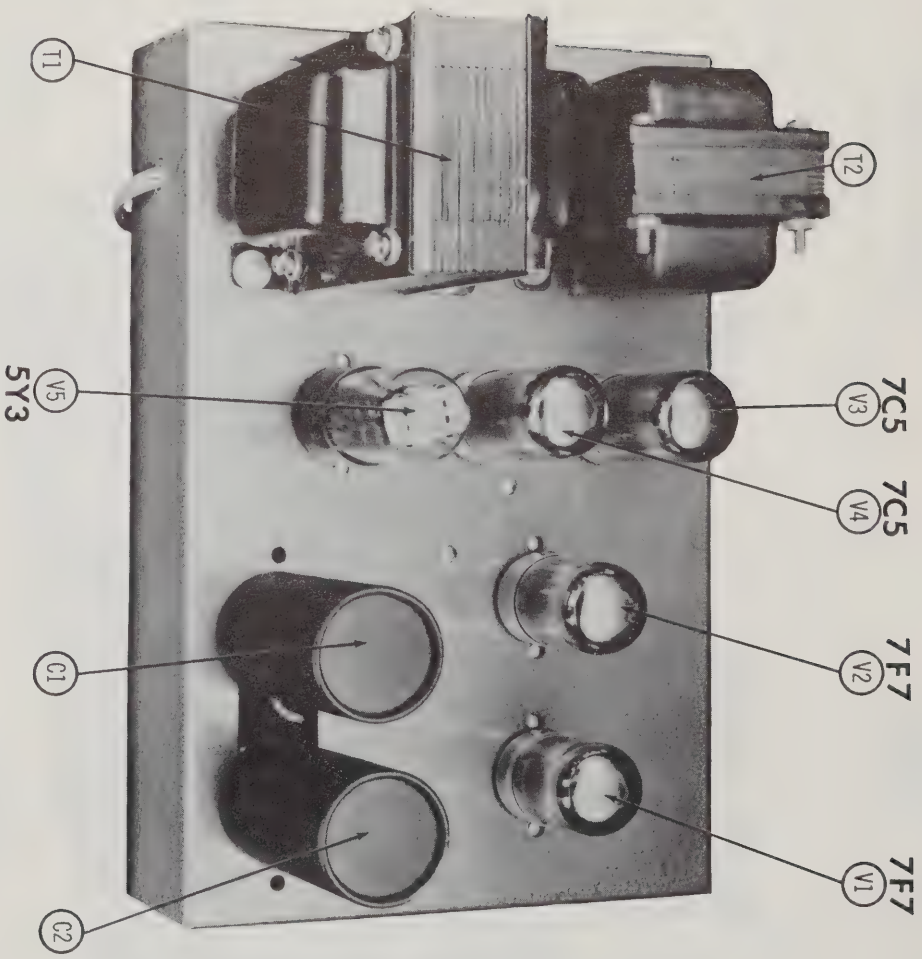
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: Approved Electronics PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲10	450		AFH4-15		UPT33245		FP396	TVL-3840	Note 1
B	■ 30	450								Note 1
C	● 30	450								Note 1
D	10	25								Note 2
C2A	■30	450		AFH2-54		UP3345		FP237	TVL-2759	Note 1
B	●30	450								Note 1
C	▲ 10	450								Note 2
D	10	25								Note 2
C3	25	50		PRS50/25		BR255A		TC36	TVA-1306	
C4A	25	25		PRS150/20-20		EDL2202		TCD26	TVA-2428	
B	25	25								
C5	20	450		PRS450/20		BR2045A		TC75	TVA-1709	Note 3
C6	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C7	500			S1500	D6-501	TM5T5	GP2K-501	UC535	5GA-T5	
C8	6000	500		1467-006		1D5D6	GP2-333-602	MC467	1FM-26	
C9	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C10	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	

Note 1. Some Models use 20MFD in this application
Note 2. This section not used.
Note 3. Not used in all Models

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Approv. Electronics PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	BA011-328	Q13-133	AG-60-Z	B-60	U-48	Gain
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R1A
R2A	500KΩ	½	BA-11-328	Q13-133	AG-60-Z	B-60	U-48	Bass
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R2A
R3A	500KΩ	½	BA011-328	Q13-133	AG-60-Z	B-60	U-48	Treble
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R3A

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Approved Electronics PART No.	IRC PART No.	
R4	3000Ω	½			Pre Amp. Cathode
R5	51KΩ	½			Pre Amp. Plate
R6	10KΩ	½		BTS-10K	Pre Amp. Plate Decoupling
R7	100KΩ	½		BTS-100K	Voltage Divider
R8	68KΩ	½		BTS-68K	Voltage Divider
R9	270KΩ	½		BTS-270K	Tone Compensation
R10	22KΩ	½		BTS-22K	Voltage Divider
R11	620Ω	½			AF Amp. Cathode - See Note 1
R12	620Ω	½			AF Amp. Cathode - See Note 2
R13	1000Ω	½		BTS-1000	AF Amp. Cathode
R14	2200Ω	½		BTS-2200	AF Amp. Cathode
R15	100KΩ	½		BTS-100K	AF Amp. Plate
R16	10KΩ	½		BTS-10K	AF Amp. Plate Decoupling
R17	10KΩ	½		BTS-10K	Feedback Network
R18	3300Ω	½		BTS-3300	Phase Inverter Cathode
R19	100KΩ	½		BTS-100K	Phase Inverter Plate
R20	10KΩ	½		BTS-10K	Phase Inverter Grid
R21	270KΩ	½		BTS-270K	Output Grid
R22	270KΩ	½		BTS-270K	Output Grid
R23	200Ω	10		1 3/4A-200	Output Cathode - Wire Wound - See Note 3
R24	500Ω	10		1 3/4A-500	Filter - Wire Wound
R25	1200Ω	10		1 3/4A-1200	Filter - Wire Wound

Note 1. Some Models use a 300Ω Resistor in this application
Note 2. Not used in all Models
Note 3. Some Models use a 350Ω Resistor in this application

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	Approv. Elect. PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC ② .75A	624VCT ② .080ADC	5VAC ② 1.74A	6.3VAC ② 1.5A	R-45955	P-8109 ① ②		PV-70A ①	

① Drill new mtg. holes
② Add series HV Dropping Resistor (500Ω 10W)

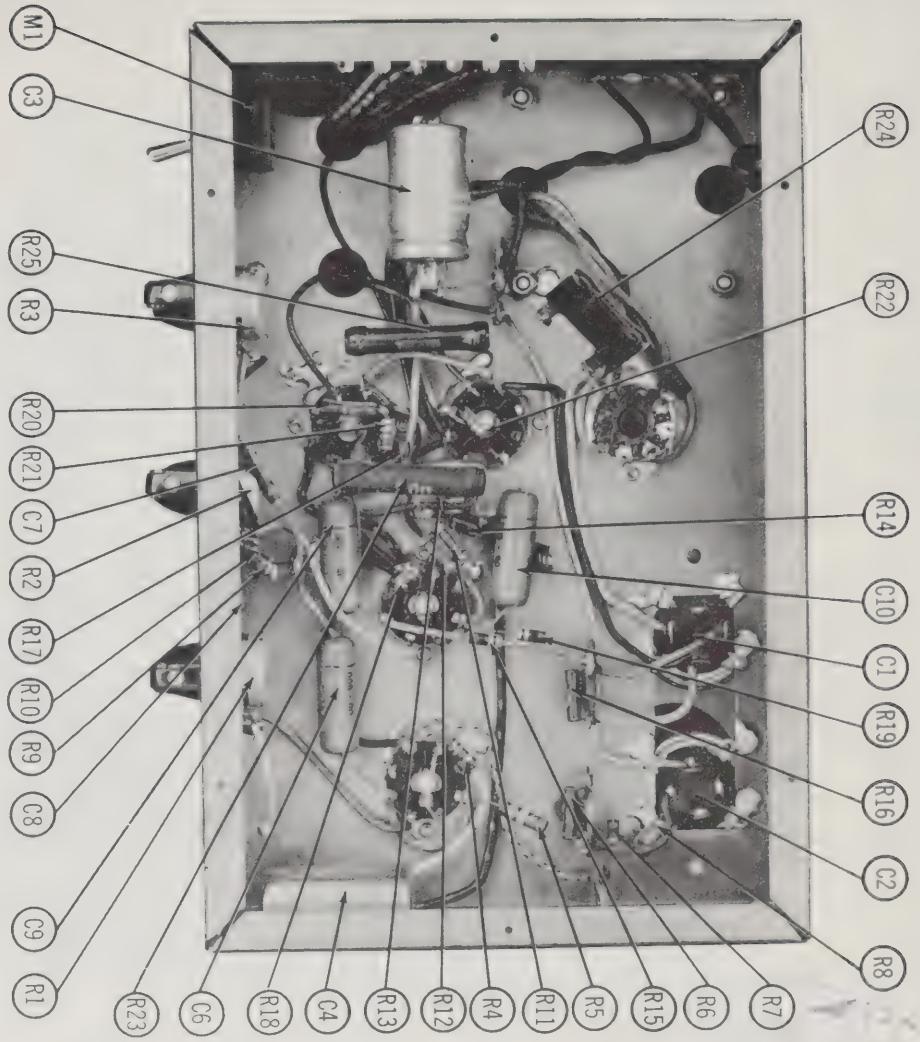
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Approved Electronics PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	5.3KΩ	500Ω, 250Ω, 15Ω, 8Ω, 4Ω	210Ω CT	16.4Ω Tap ② 10.6Ω, .41Ω, .33Ω, .25Ω						

MISCELLANEOUS

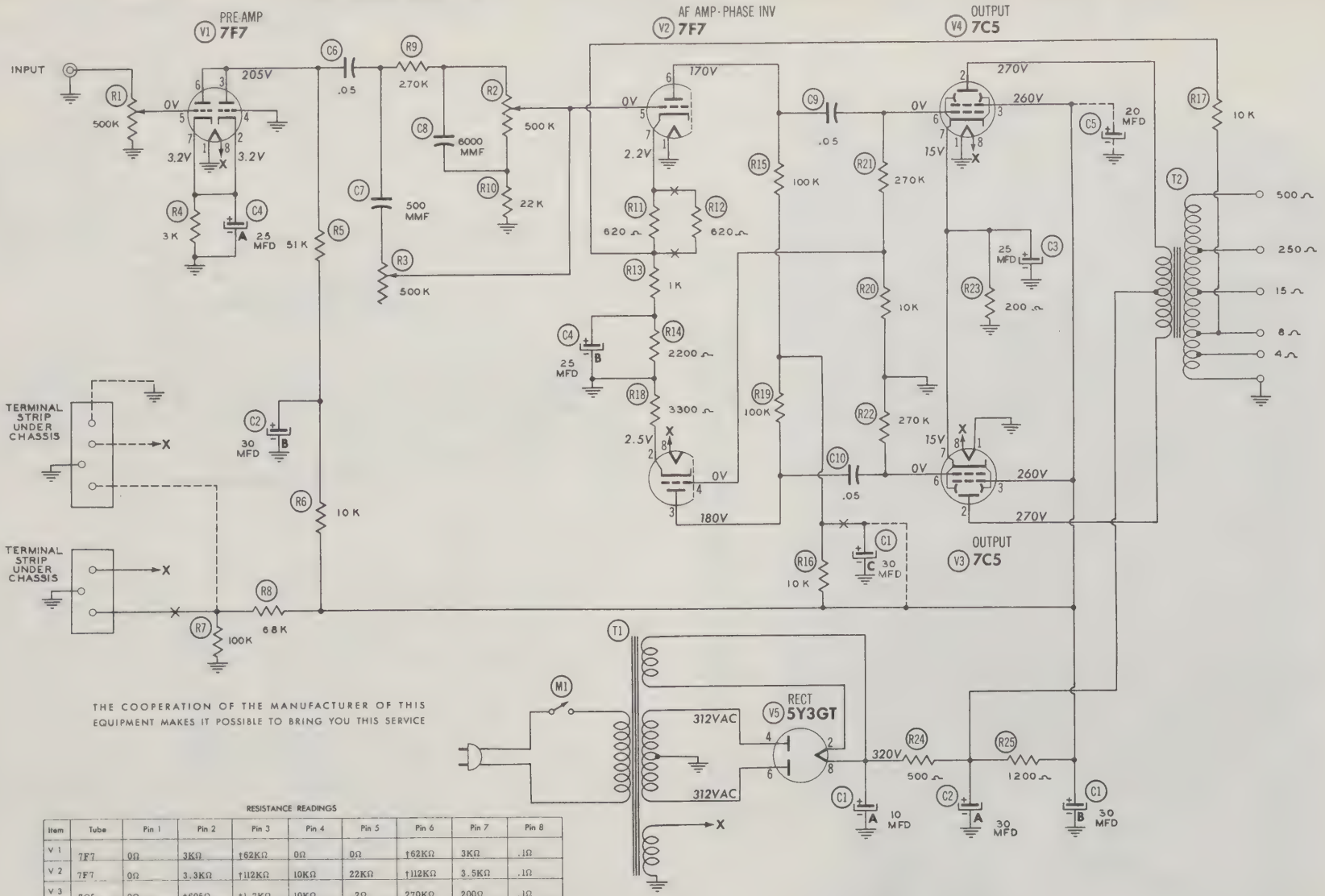
ITEM No.	PART NAME	Approv. Elect. PART No.	NOTES
M1	Switch		Power On/Off

CHASSIS—BOTTOM VIEW



APPROVED ELECTRONICS MODEL A-850

APPROVED ELECTRONICS MODEL A-850



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	7F7	0Ω	3KΩ	†62KΩ	0Ω	0Ω	†62KΩ	3KΩ	.1Ω
V 2	7F7	0Ω	3.3KΩ	†112KΩ	10KΩ	22KΩ	†112KΩ	3.5KΩ	.1Ω
V 3	7C5	0Ω	†605Ω	†1.7KΩ	10KΩ	.2Ω	270KΩ	200Ω	.1Ω
V 4	7C5	0Ω	†605Ω	†1.7KΩ	INF	INF	28KΩ	200Ω	.1Ω
V 5	5Y3GT	INF	40KΩ	INF	142Ω	INF	147Ω	INF	40KΩ

† MEASURED FROM PIN 8 OF V5

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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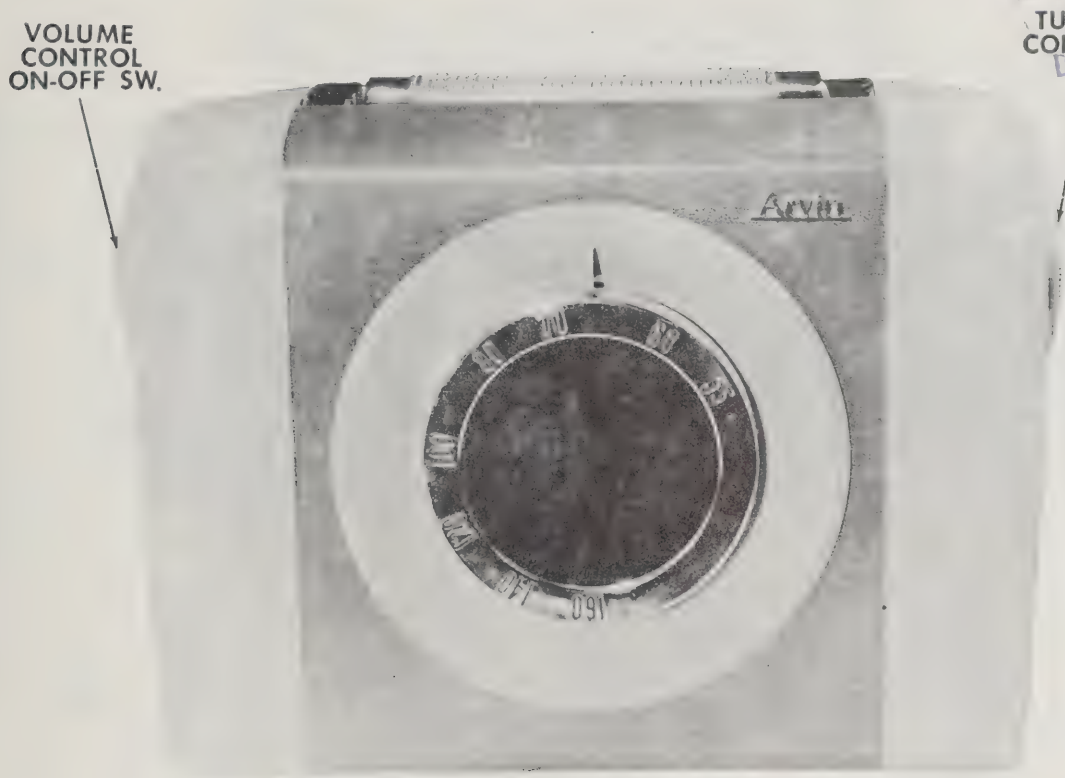
1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

ARVIN
MODEL 650-P (Ch. RE292)



ARVIN
MODEL 650-P (Ch. RE292)

TRADE NAME	Arvin Model 650-P (Ch. RE292)
MANUFACTURER	Arvin Industries, Columbus, Indiana
TYPE SET	Three Power Portable AM Superheterodyne Receiver
TUBES (Five)	Types 1T4 RF Amp., 1R5 Conv., 1T4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Audio Output
POWER SUPPLY	110-120 Volts AC/DC or 9 Volts "A" Supply & 90 Volts "B" Supply
RATING	.150 Amp @ 117 Volts AC or 50MA @ 9 Volts DC & 20MA @ 90 Volts DC
TUNING RANGE—BROADCAST	530-1660 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (gird) of 1R5 (V2). Low side to B-.	455 KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If aAC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.	Direct	High side to pin 6 (grid) of 1T4 (V1) Low side to B-.	"	"	"	A5	Adjust for MINIMUM output
3.		Loop	1660 KC	"	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		Loop	1400 KC	Tune to 1400 KC signal	"	A7	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ARVIN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amplifier	1T4	1T4	6AR	
V2	Converter	1R5	1R5	7AT	
V3	IF Amplifier	1T4	1T4	6AR	
V4	Det.-AVC-AF Amp.	1U5	1U5	6BW	
V5	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲50	150		AFH4-32				FP408		
B	■20	150								
C	▲150	15								
D	30	15								
C2	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C3	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C4	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C5	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C6	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C7	50			S150	D6-500	TM5Q5	GP1K-500	UC-545	5GA-Q5	
C8	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C9	.1	200		P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C10	.047	200		P288-047	DF-503	PJ4S5		PT415	2TM-S47	
C11A	100			S1100	♦PC-50	TM5T1	GP1K-101	UC-531	♦100C1	
B	100			S1100		TM5T1	GP1K-101	UC-531		
C12	1000			S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C13	100			S1100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C14	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C15	3300			S13300	D6-332	PTE6D33	GP2-333-332	UC-5233	5HK-D33	
C16	3300			S13300	D6-332	PTE6D33	GP2-333-332	UC-5233	5HK-D33	
C17	.047	400		P488-047	DF-503	PTE4S47		PT415	4TM-S47	
C18	.1	400		P488-1	DF-104	PTE4P1		PT401	4TM-P1	

♦ Items C11A, C11B, R9 are combined in one unit.

CONTROLS

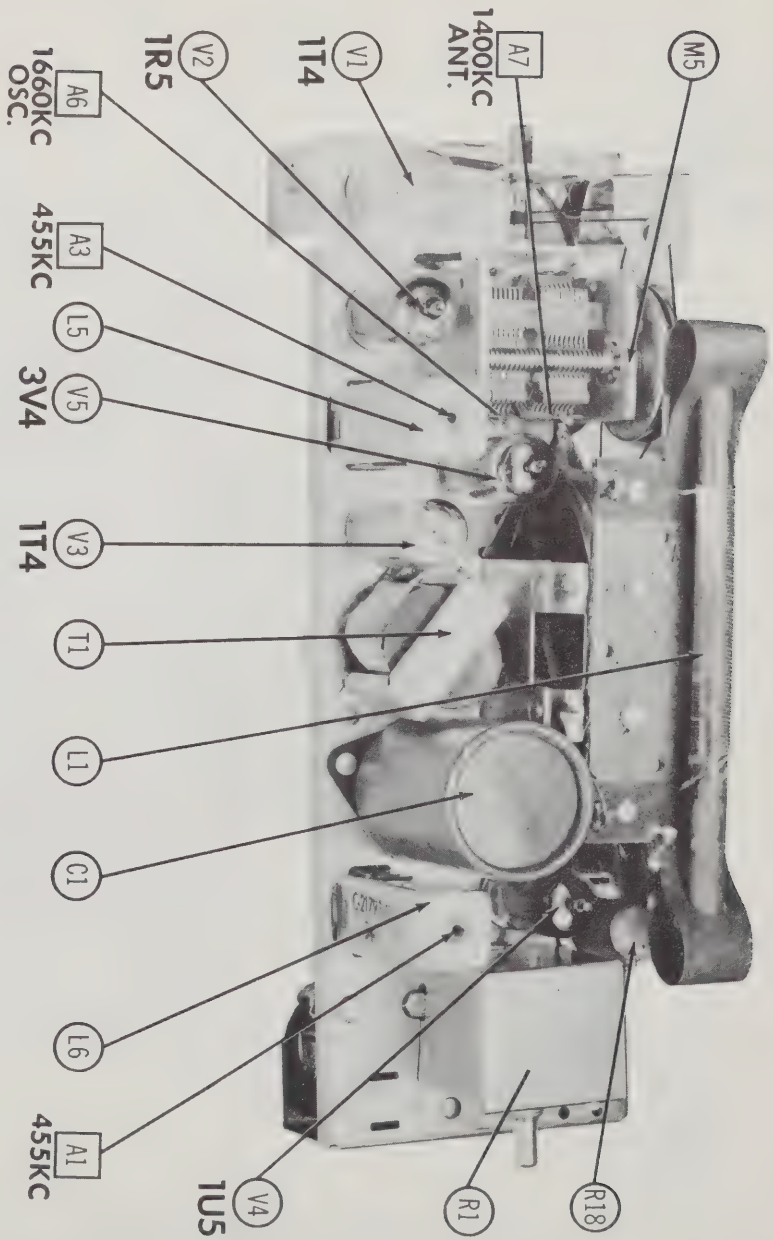
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	D25391	Q13-137	AG-63-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWB-2	Not Req.	US-27	Attach to R1A

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	IDENTIFICATION CODES
R2	6800Ω	½		BTS-6800	RF Amp. Decoupling
R3	12KΩ	½		BTS-12K	RF Coil Shunt
R4	2.2Meg	½		BTS-2.2Meg	AVC Network
R5	2.2Meg	½		BTS-2.2Meg	AVC Network
R6	1Meg	½		BTS-1Meg	AVC Network
R7	100KΩ	2		BTB-100K	Oscillator Grid
R8	2.2Meg	½		BTS-2.2Meg	IF Amp. Grid
R9	47KΩ	½	♦	BTS-47K	Diode Filter
R10	27KΩ	½		BTS-27K	Voltage Dropping
R11	10Meg	½		BTS-10Meg	AF Amp. Grid
R12	3.3Meg	½		BTS-3.3Meg	AF Amp. Screen
R13	1Meg	½		BTS-1Meg	AF Amp. Plate
R14	1Meg	½		BTS-1Meg	Output Grid
R15	1800Ω	½		BTS-1800	Filament String
R16	1500Ω	½		BTS-1500	Filament String
R17	1000Ω	½		BTS-1000	Filament String
R18	2200Ω	½		BTS-2200	Filament String
R19	2200Ω	10		1 3/4-2250	Fialment Dropping -Wire Wound
R20	2700Ω	1		BTA-2700	Filter
R21	47Ω	½			Surge Limiter-Wire Wound

♦ Items R9, C11A & C11B are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	8KΩ	3.3Ω	230Ω	.4Ω		A-3329	A-2998			

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ARVIN PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.5Ω		ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	ARVIN PART No.	MERIT PART No.	
L1	Loop Ant.	.4Ω				
L2	RF Coil	19.5Ω	19.5Ω			
L3	Fil. Choke	1Ω				
L4	Osc. Coil	2Ω	7.5Ω			
L5	Input IF	13.5Ω	13.5Ω		BC-352	
L6	Output IF	28Ω	28Ω		BC-353	

SELENIUM RECTIFIER

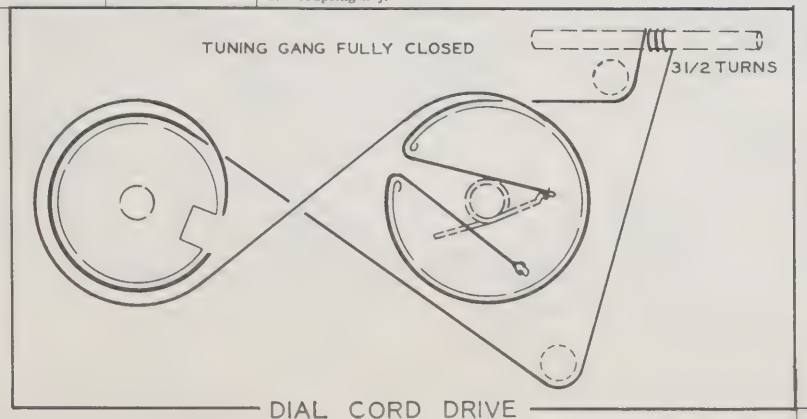
ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	ARVIN PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	
M1	.070A		NB-5	5M4	1003A	6S75	

BATTERIES

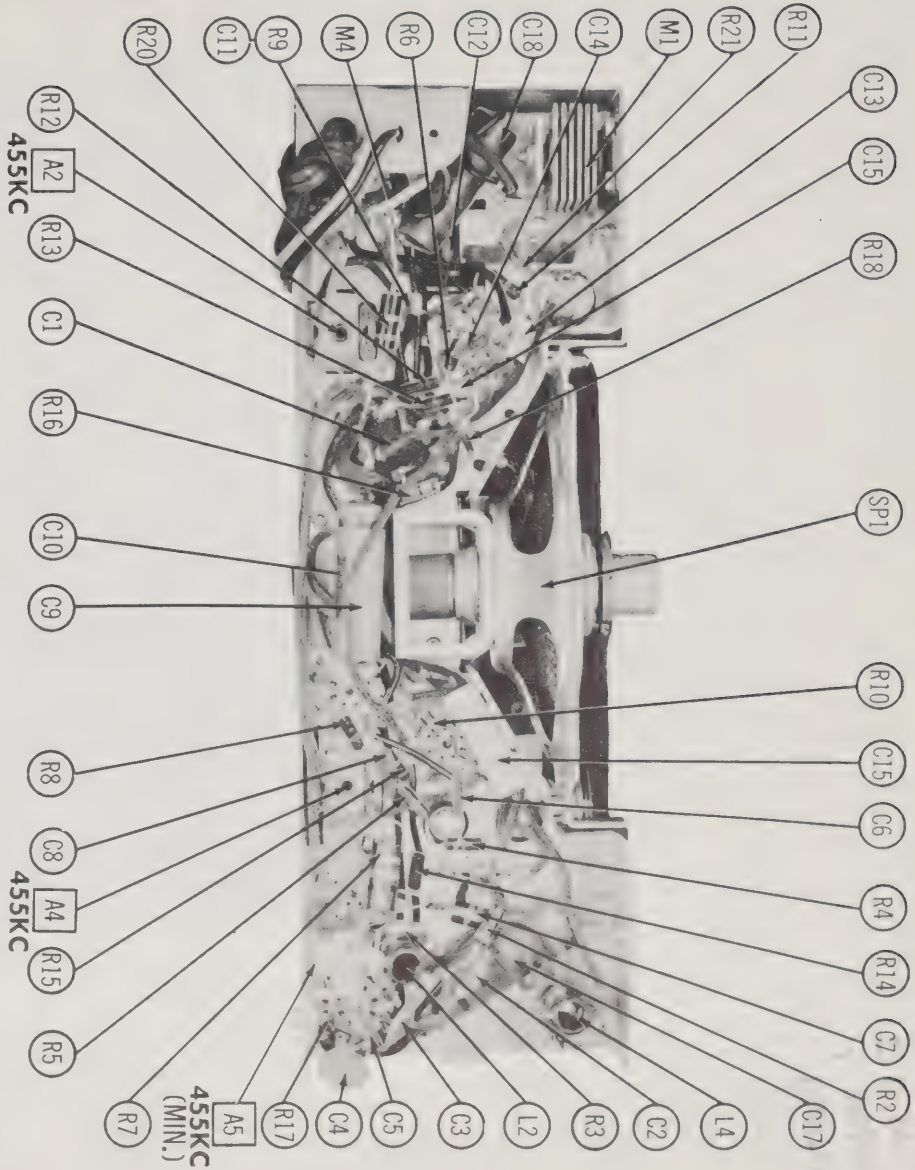
ITEM No.	VOLTAGE	ARVIN PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	1.5V		935			#1			Use 6 batteries in series
M3	45V			455			XX30		Use 2 batteries in series

MISCELLANEOUS

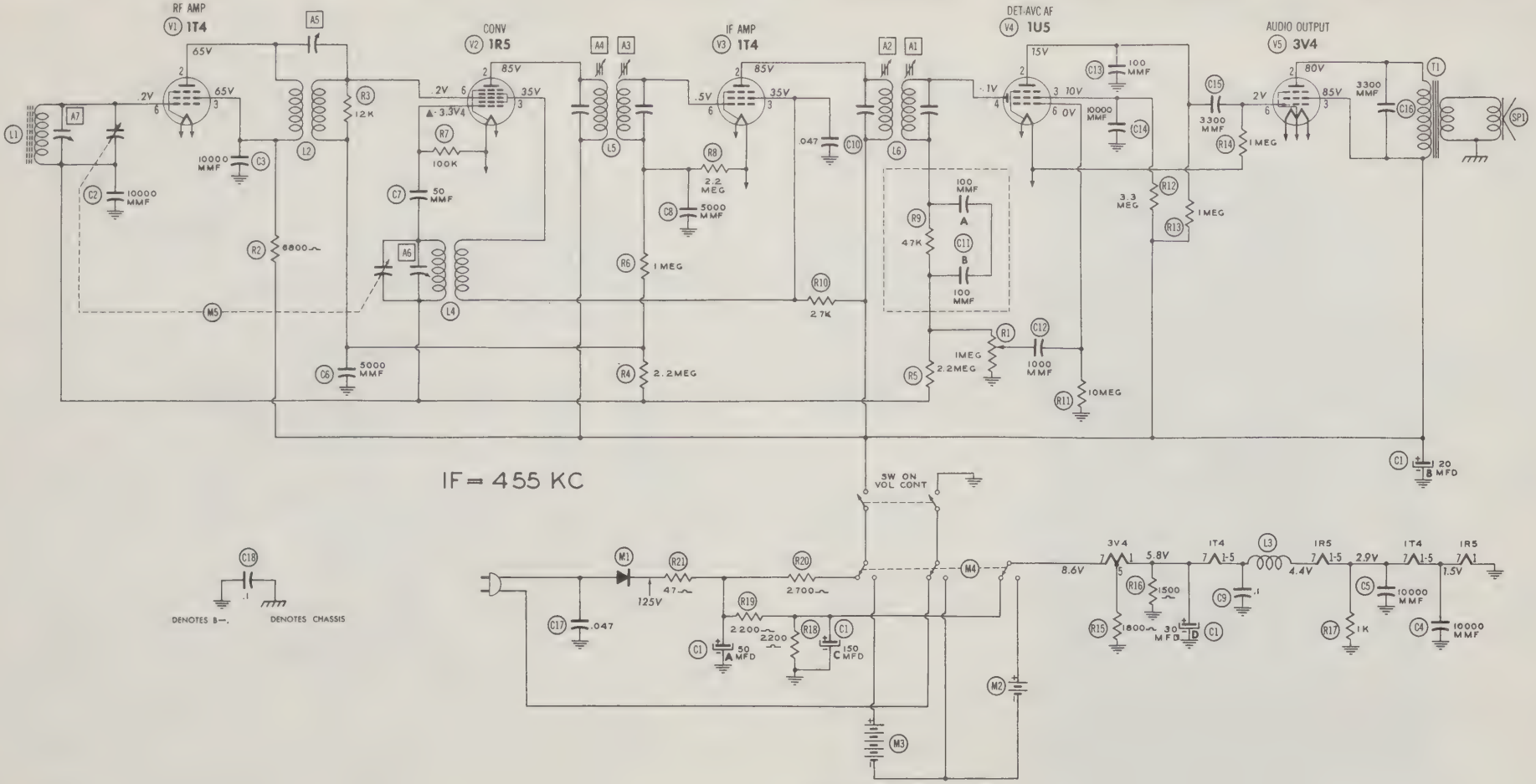
ITEM No.	PART NAME	ARVIN PART No.	NOTES
M4	Switch		Power Change-over
M5	2 Gang Var. Cap.		(20-314MMF, 23-187MMF)
A5	Trimmer	A25418	RF coupling adj.



CHASSIS—BOTTOM VIEW



ARVIN MODEL 650-P



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1T4	*	†9.5KΩ	†9.5KΩ	0Ω	*	2Meg	*
V 2	1R5	*	†2.7KΩ	†30KΩ	100KΩ	*	2Meg	*
V 3	1T4	*	†2.7KΩ	†30KΩ	0Ω	*	1.7Meg	*
V 4	1U5	*	†1Meg	†3.3Meg	1Meg	1Meg	10Meg	*
V 5	3V4	*	†2.9KΩ	†2.7KΩ	INF	*	1Meg	*

ALL MEASUREMENTS TAKEN WITH POWER CHANGEOVER SWITCH IN AC POSITION
† MEASURED FROM OUTPUT OF M1
▲ TAKEN WITH VACUUM TUBE VOLTMETER
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

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1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

CORONADO MODELS 15TV4-43-8948A, 15TV4-43-8949A

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MODEL 15TV4-43-8948A

CORONADO MODELS 15TV4-43-8948A, 15TV4-43-8949A

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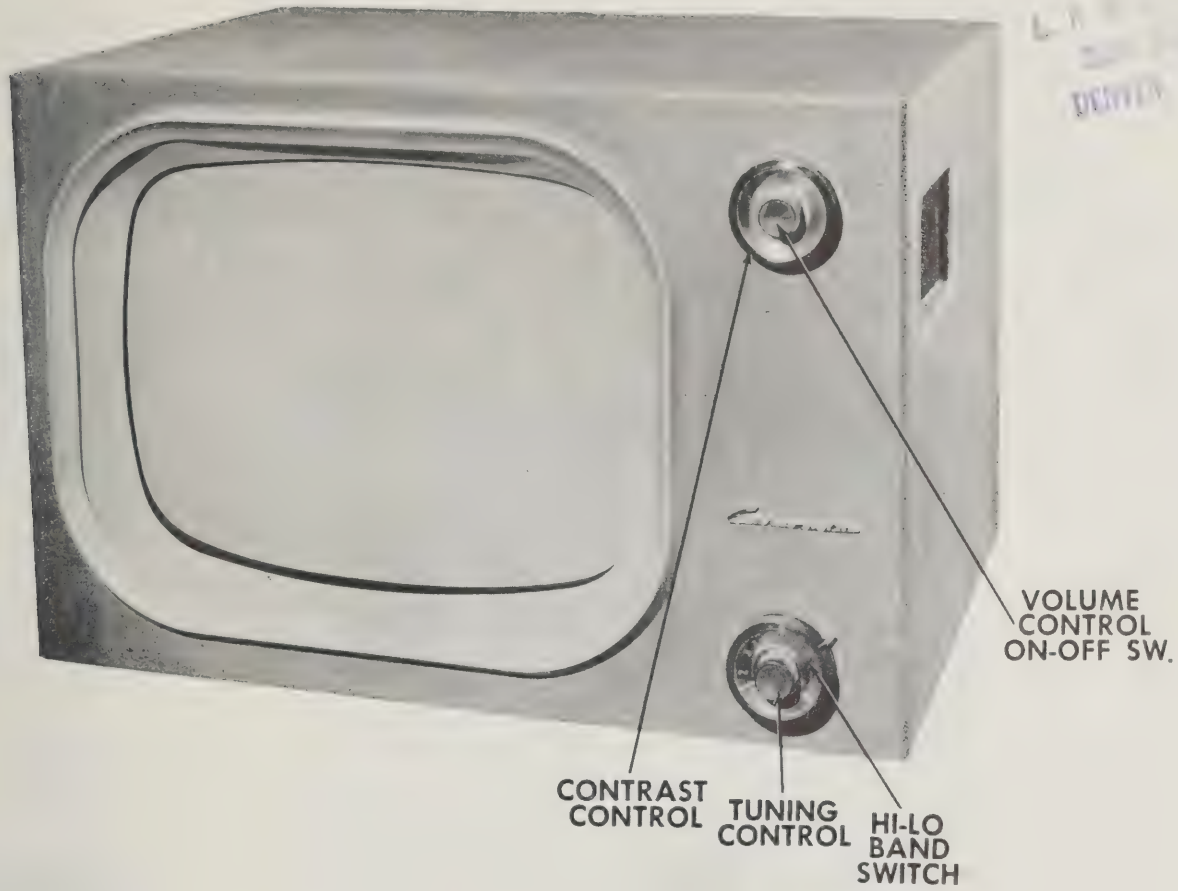
DATE 8-52 SET 175 FOLDER 7

CORONADO MODELS 15TV4-43-8948A, 15TV4-43-8949A

DENVER COLORADO



CORONADO MODELS 15TV4-43-8948A, 15TV4-43-8949A

Coronado 15TV4-43-8948A

TRADE NAME	Coronado Models 15TV4-43, 8948A, 15TV4-43 - 8949A (Ch.15TV4-7003U)
SUPPLIER	Gamble-Skogmo Inc., 15N. 8th St., Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	Seventeen
POWER SUPPLY	110-120 Volts AC - 60 Cycle — RATING 1.16 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 continuous tuning

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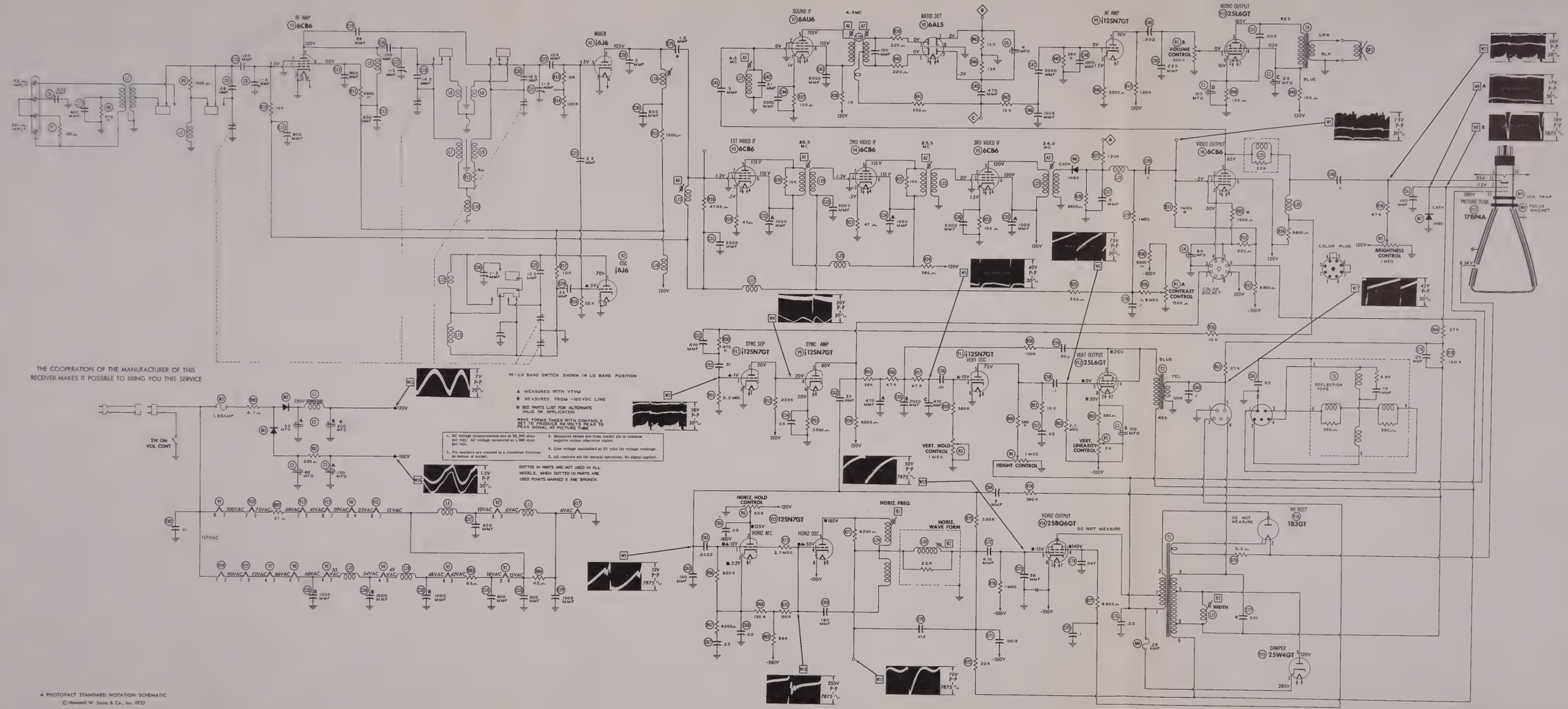

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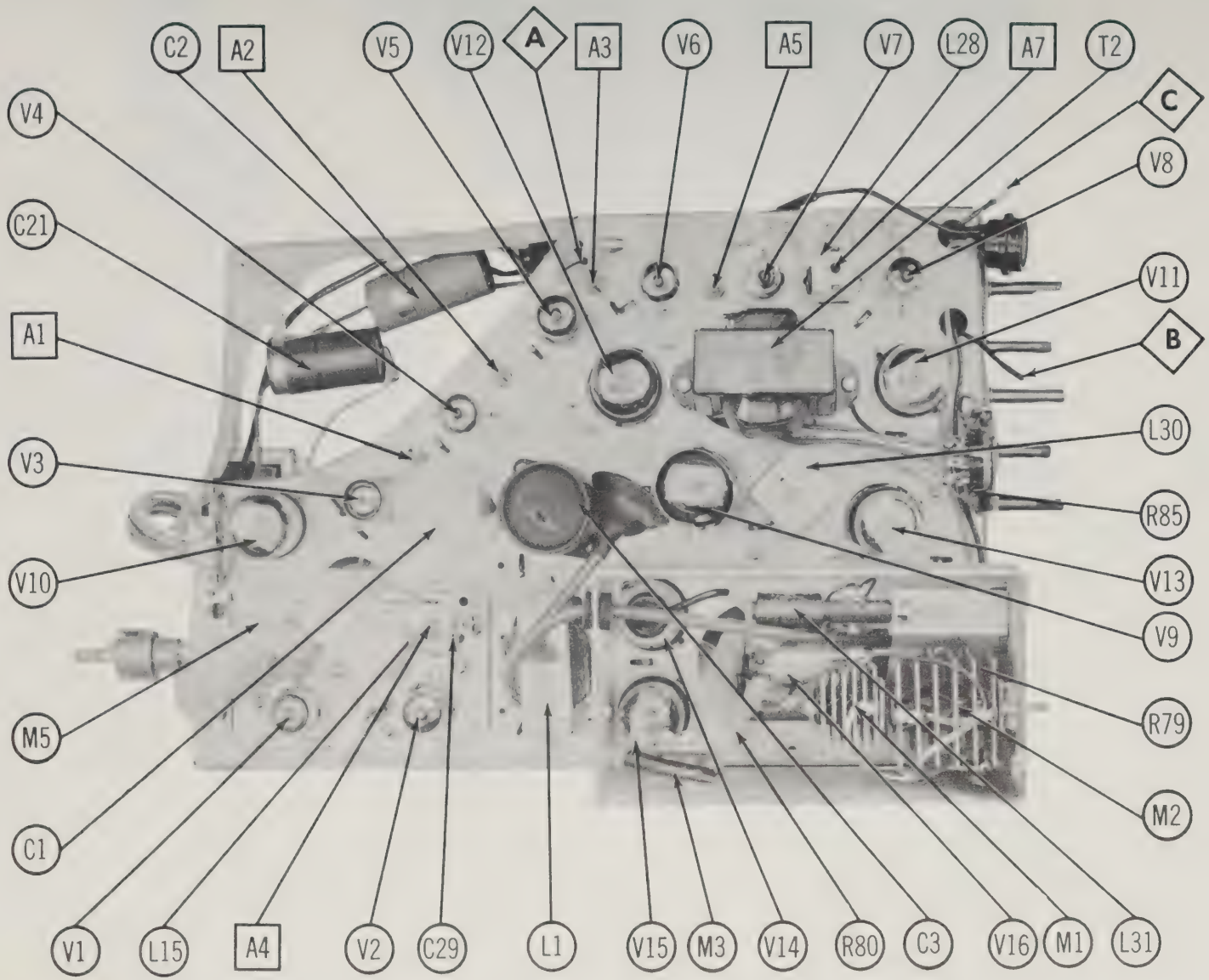
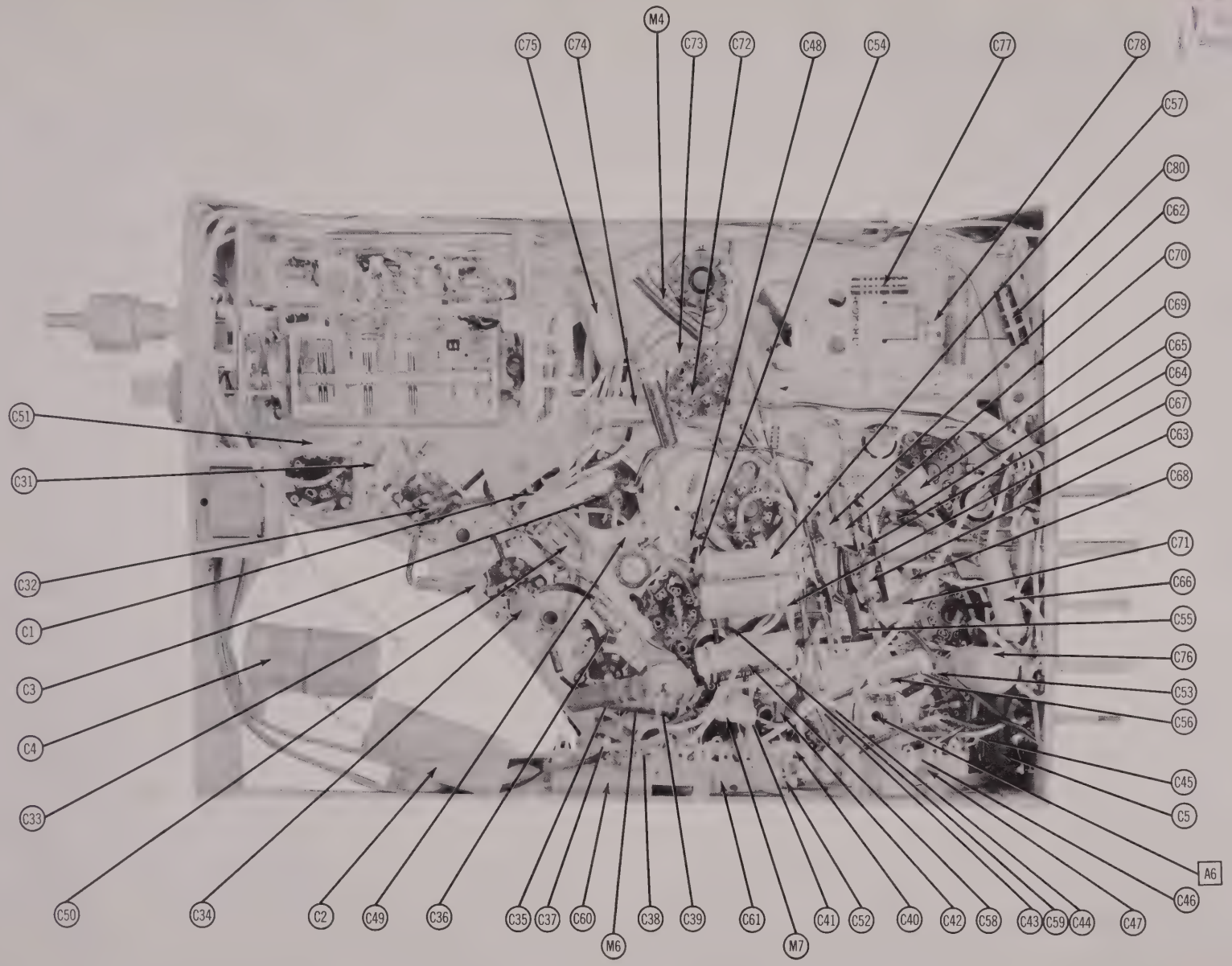
CORONADO MODELS 15TV4-43-8948A, 15TV4-43-8949A

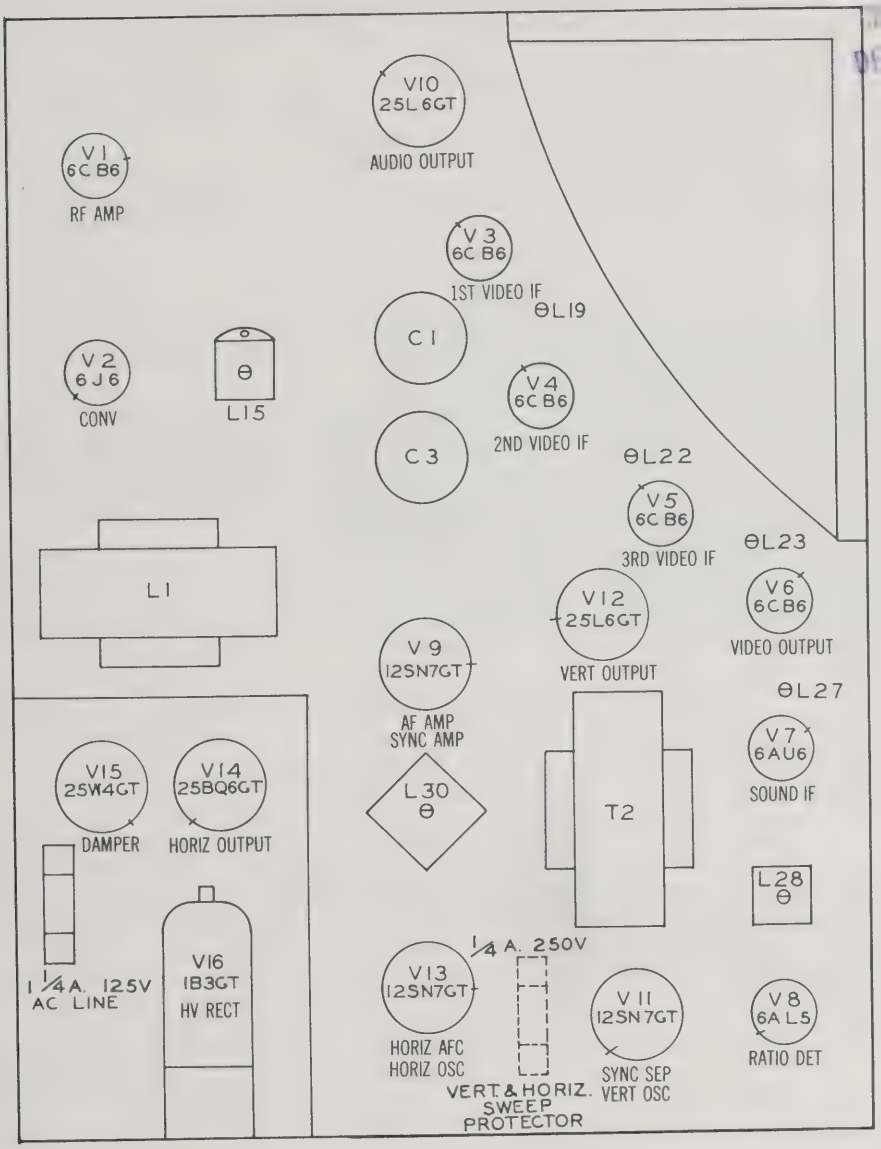


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound - Selenium Rectifiers (M1, M2), Fuse (M3)

LOSS OF PICTURE OR SOUND
No pic, No sound, Has raster - V2, V3, V4, V5, V6
No pic, No sound, Has snow - V1, V2, V3
No pic, Has sound, Has raster - V6, V17
Has pic, No sound, V7, V8, V9, V10

SYNC FAILURE
No Vert. sync - V9, V11, V12
No Hor. sync - V9, V13
No Vert. or Hor. sync - V11, V9

SWEEP FAILURE
No raster, has sound - V13, V14, V15, V16, V17, Fuse (M4)
No Vertical deflection - V9, V11, V12
Poor Vert. Linearity or foldover - V11, V12
Poor Horiz. linearity or foldover - V13, V14, V15
Narrow picture - V13, V14, V15, M1, M2
Vert. off freq. - V11, V12
Horiz. off freq. - V13

NOTE - Since this receiver employs series filaments, an open filament in any tube will cause all tubes in series to be inoperative.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the the high voltage.
Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Set the contrast control to obtain 3 volts DC as measured with a VTVM from center arm of control to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.001MFD	High side to pin 1 (grid) of 6CB6 (V3). Low side to chassis.	22.5MC (unmod.)	Any	DC probe to Point (A). Common to chassis.	A1	Adjust for maximum deflection. Attenuate generator output to maintain 1 to 1.5 volt reading.
2.	"	"	25.5MC	"	"	A2	"
3.	"	"	24.0MC	"	"	A3	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.001MFD	High side to pin 1 (grid) of 6CB6 (V3). Low side to chassis.	24 MC (10MC Swp)	21.25MC 22.25MC 25.75MC	Any	Vert. amp. to point (A). Low side to chassis.		Check for response curve similar to fig. 1 with markers as shown. If necessary retouch A1, A2 and A3 for proper response.

CONVERTER PLATE CIRCUIT ALIGNMENT

The tuner portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field. The only adjustment which should be necessary is that of the first IF coil, L15.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to an ungrounded tube shield floating over dummy converter tube, V2. Low side to chassis.	24MC (10MC Swp)	21.25MC 25.75MC	Any	Vert. amp. to point (A). Low side to chassis.	A4	Adjust for response curve as per fig. 2. If necessary retouch A3 for a flat top response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.001MFD	High side to pin 1 (grid) of 6CB6 (V6). Low side to chassis.	4.5MC (unmod.)	Any	DC probe to Point (B). Common to chassis.	A5, A6	Adjust for maximum deflection.
7.	"	"	"	"	DC probe to Point (C). Common to chassis.	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.001MFD	High side to pin 1 (grid) of 6CB6 (V6). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A5, A6	Disconnect stabilizer capacitor C5. Adjust for curve of maximum amplitude and symmetry as per fig. 3.
7.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A7	Reconnect capacitor C5. Adjust so that 4.5MC occurs at center of crossover lines as per fig. 4. SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines.

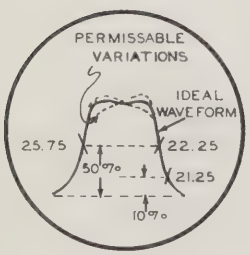


FIG.1

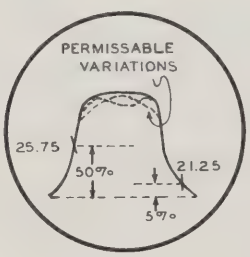


FIG.2

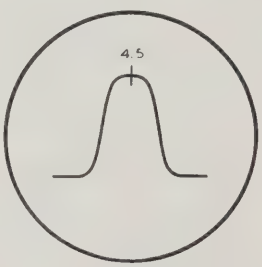


FIG. 3

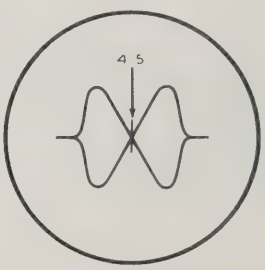
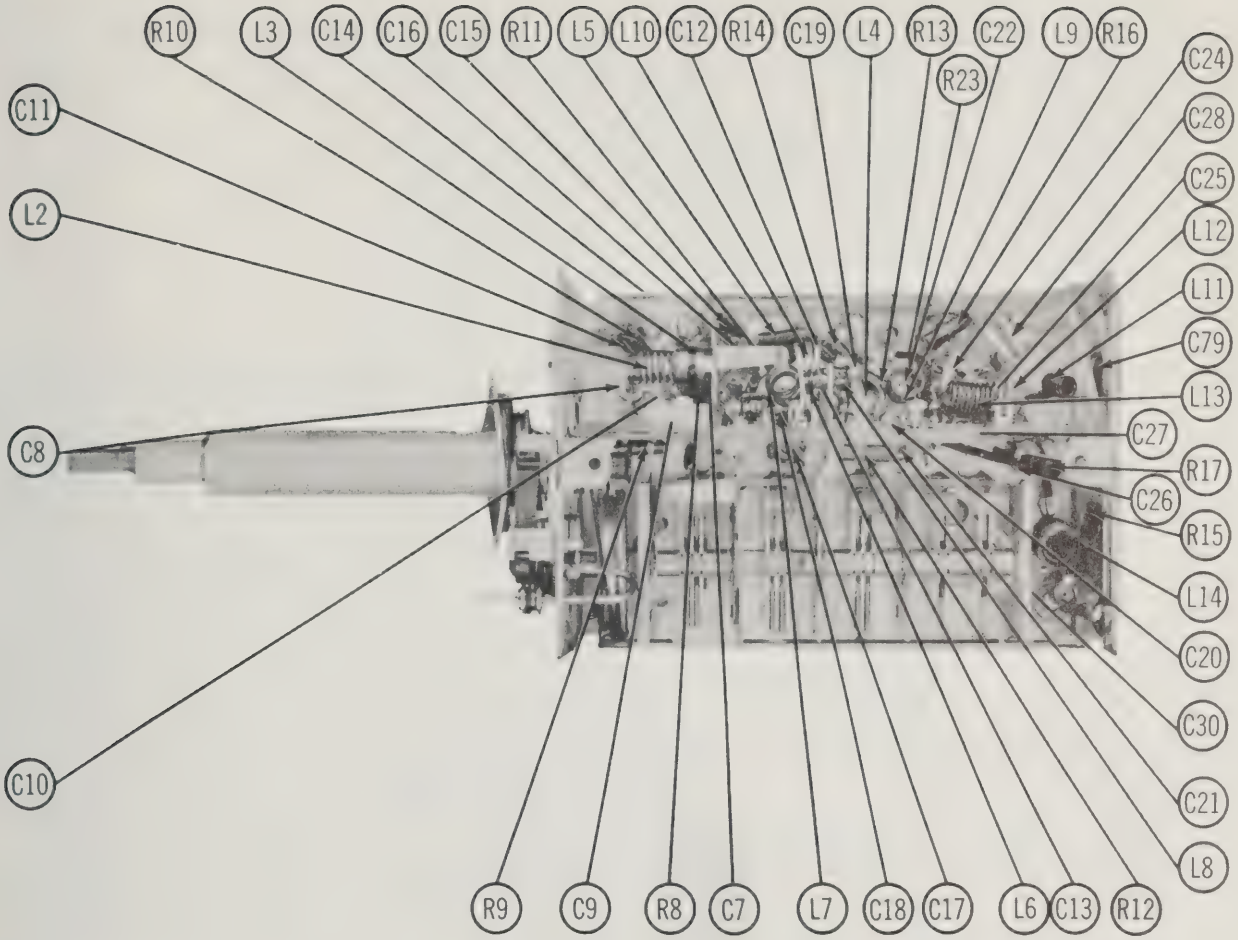
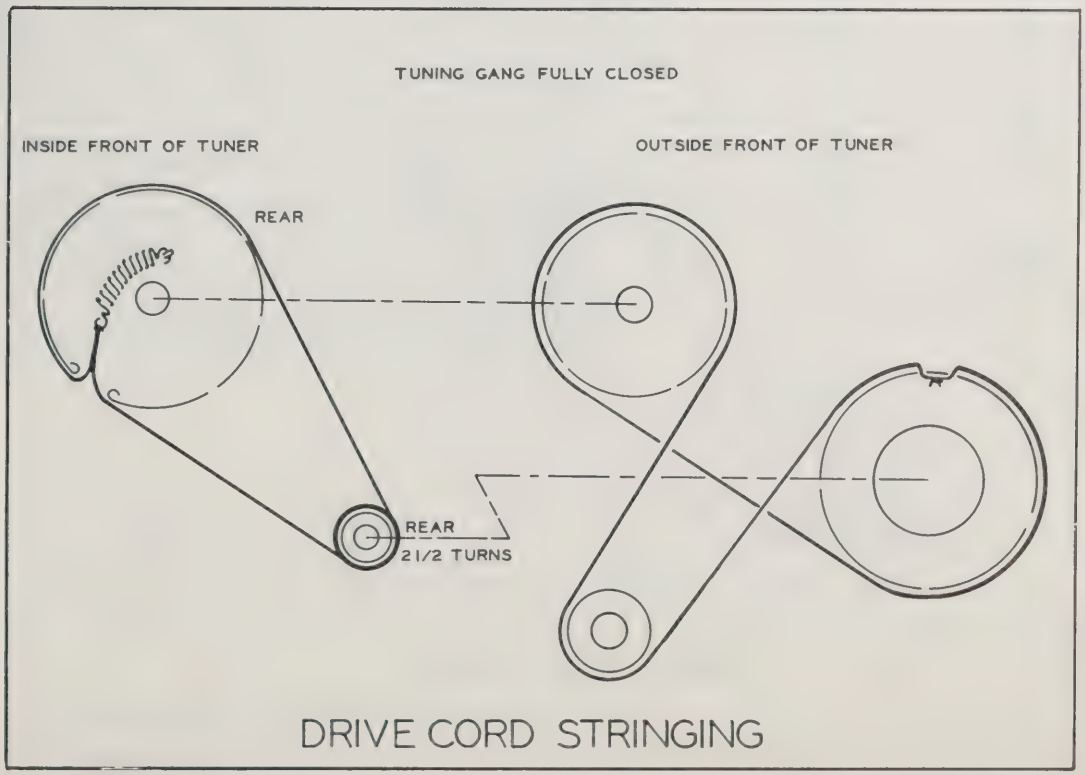


FIG. 4



RF TUNER



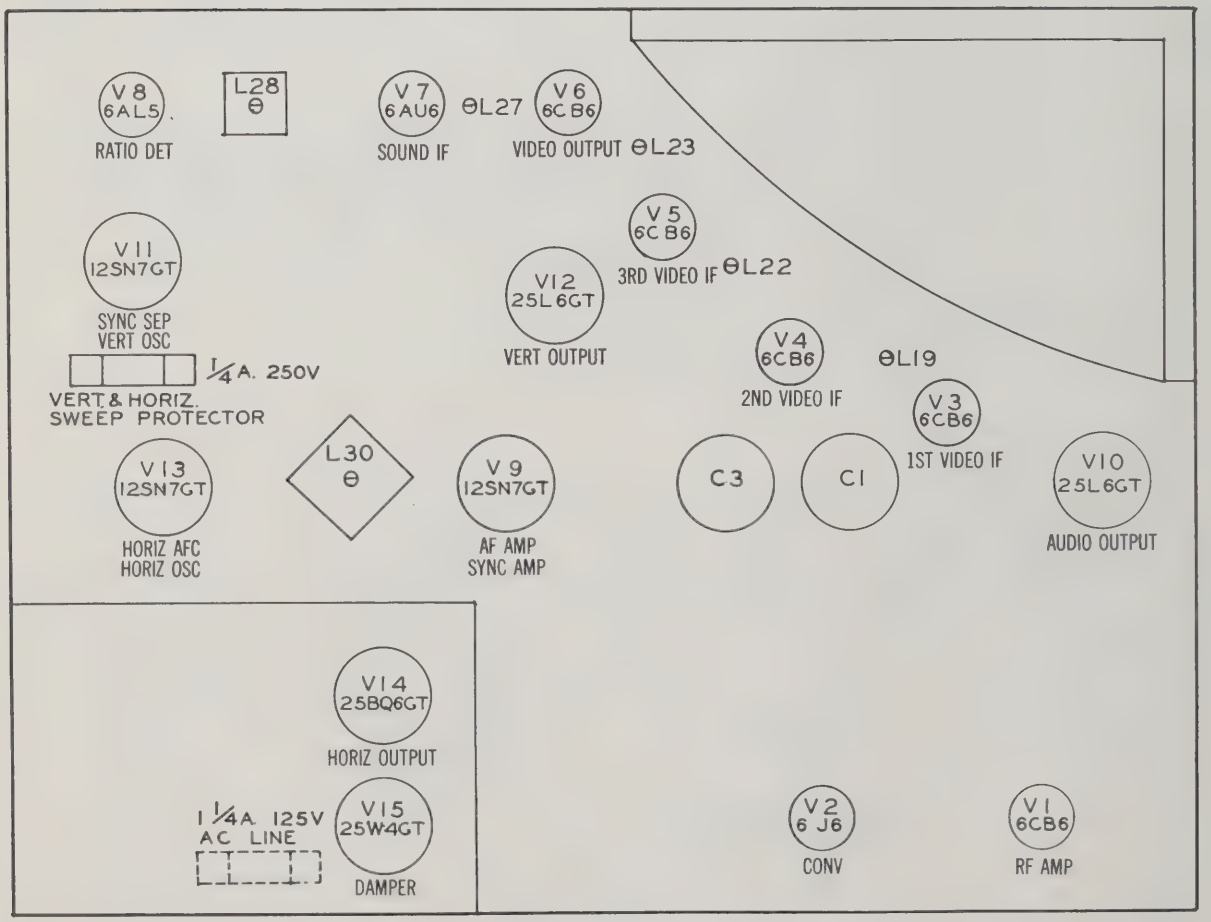
DRIVE CORD STRINGING

RESISTANCE MEASUREMENTS

VOLTAGE READINGS

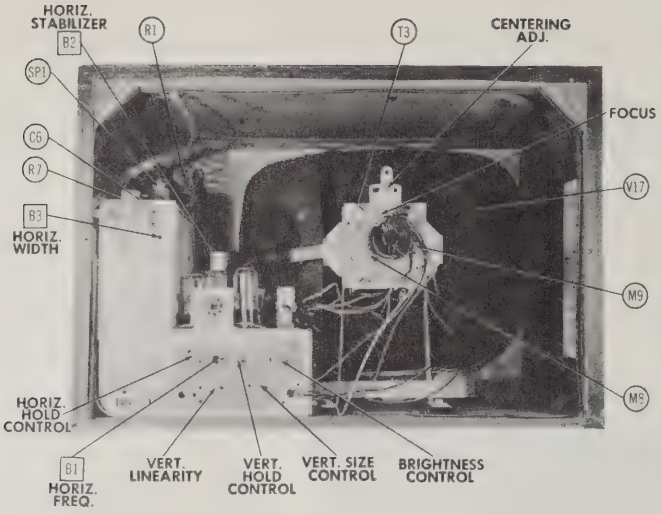
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	630KΩ	0Ω	6.5Ω	3.5Ω	†34Ω	†6.8KΩ	0Ω		
V 2	6J6	†10KΩ	†1.5KΩ	1.6Ω	3.4Ω	110KΩ	22KΩ	0Ω		
V 3	6CB6	620KΩ	47Ω	52Ω	53Ω	†595Ω	†595Ω	0Ω		
V 4	6CB6	620KΩ	47Ω	53Ω	54Ω	†590Ω	†590Ω	0Ω		
V 5	6CB6	.5Ω	150Ω	54Ω	55Ω	†31Ω	†31Ω	0Ω		
V 6	6CB6	■1Meg	7K	55Ω	56Ω	7KΩ	†31Ω	7K		
V 7	6AU6	1.2Ω	0Ω	56 Ω	57Ω	†1KΩ	†1KΩ	100Ω		
V 8	6AL5	15KΩ	15KΩ	12Ω	9.3Ω	INF	0Ω	INF		
V 9	12SN7GT	560KΩ	†120KΩ	2.2KΩ	†220KΩ	†8.2KΩ	3.3KΩ	48Ω	50Ω	
V 10	25L6GT	INF	45Ω	†386Ω	†180Ω	200KΩ	INF	48Ω	150Ω	
V 11	12SN7GT	2.2Meg	†220KΩ	0Ω	890KΩ	#900KΩ	0Ω	3.5Ω	9.3Ω	
V 12	25L6GT	■0Ω	17Ω	†750Ω	†750Ω	■2.7Meg	■1.9KΩ	26Ω	■2.5KΩ	
V 13	12SN7GT	■800KΩ	6KΩ	■218KΩ	■218KΩ	†22KΩ	■0Ω	12Ω	17Ω	
V 14	25BQ6GT	†22KΩ	53Ω	†31Ω	†6.9KΩ	■1Meg	†80Ω	50Ω	■0Ω	TOP CAP #44Ω
V 15	25W4GT	#2.8Ω	INF	800KΩ	INF	†44Ω	INF	53Ω	57Ω	
V 16	1B3GT	PINS	1 - 8	HAVE	INF	RESISTANCE				TOP CAP #442Ω
V 17	17BP4A	0Ω	2.6KΩ	PIN 10 #2.8Ω	PIN 11 180KΩ	PIN 12 1.6Ω				

HI-LO BAND SWITCH IN "LO-BAND" POSITION
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM OUTPUT OF M2
# MEASURED FROM PIN 3 OF V15
■ MEASURED FROM -100VDC LINE



BOTTOM VIEW

TUBE PLACEMENT CHART



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control fully counter-clockwise and momentarily interrupt the signal by switching to another channel and back again. The picture should lose sync and a maximum of 3 sloping black bars should appear.

Turn the horizontal hold control fully clockwise and interrupt the signal as before. $4\frac{1}{2}$ sloping bars should appear.

Rotate the horizontal hold control approximately $\frac{1}{2}$ turn counter-clockwise where the picture should fall into sync.

If the receiver passes the above tests no alignment is necessary.

HORIZONTAL OSCILLATOR ALIGNMENT

1. Set the horizontal hold control to mid-position.
2. Adjust the horizontal frequency slug (B1) until picture locks into sync.
3. Rotate the horizontal hold control fully clockwise and adjust B1 to obtain $4\frac{1}{2}$ sloping bars on the screen.
4. Repeat the oscillator alignment check as outlined above and if necessary repeat the horizontal oscillator alignment.

HORIZONTAL WAVEFORM ADJUSTMENT

If all the above adjustments do not result in satisfactory horizontal sync it may be necessary to adjust the horizontal waveform slug (B2).

Connect the vertical amplifier of an oscilloscope through 47KΩ to the junction of L29 and L30. Connect the low side to chassis.

View the response curve on the scope which should appear as in fig. 5.

If necessary adjust B2 until the sharp and broad peaks are of equal height.

WIDTH ADJUSTMENT

Adjust the width slug (B3) for a picture slightly wider than enough to fill the picture mask.

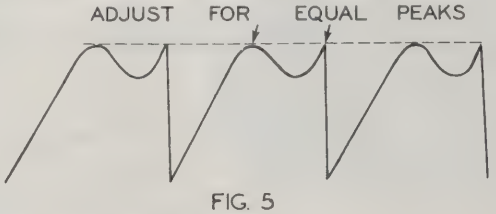


FIG. 5

DISASSEMBLY INSTRUCTIONS

1 - Remove 5 Push on type Control Knobs from front Panel.

2 - Remove 8 wood Screws. Remove rear cover.

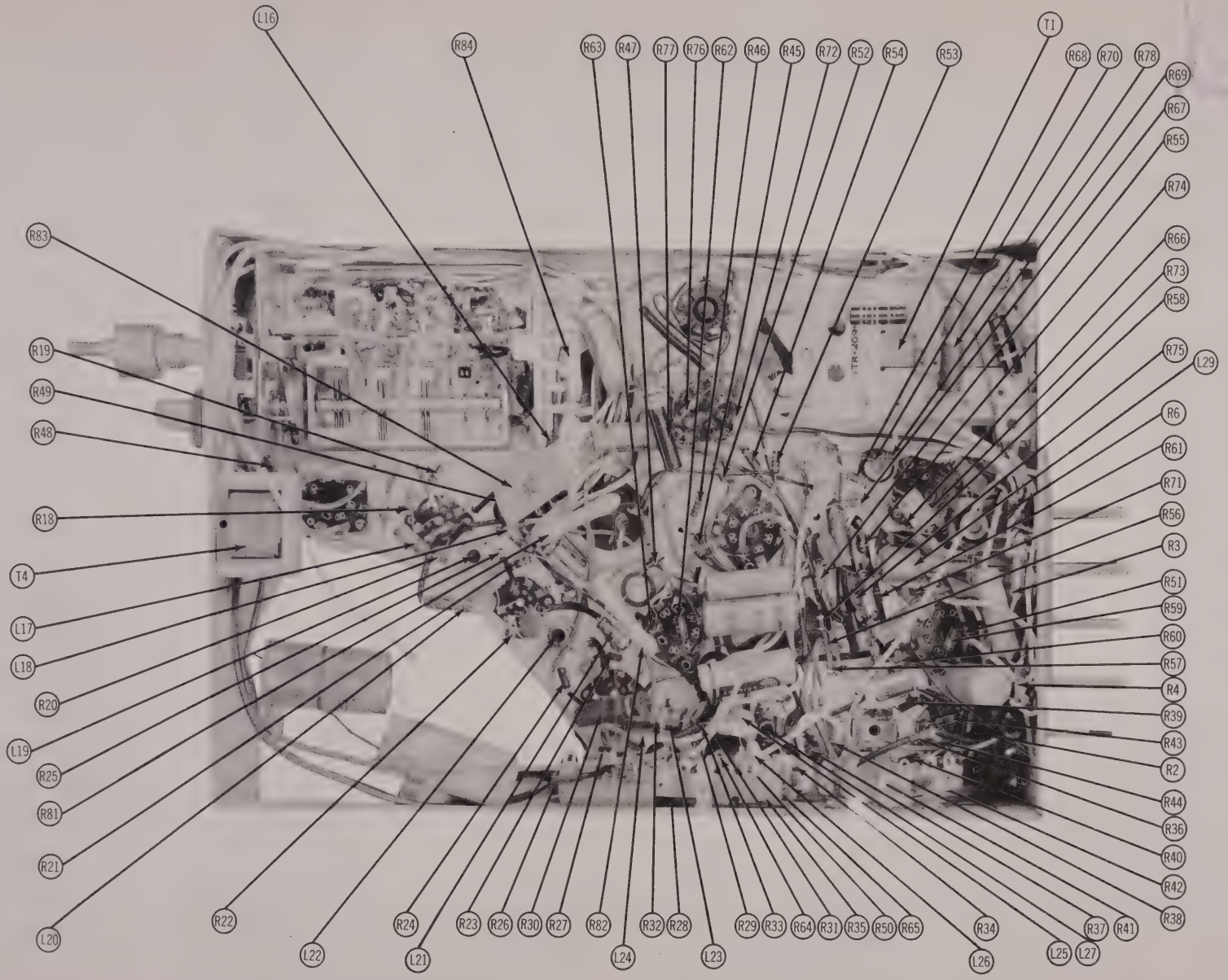
3 - Remove Clip-on Bracket holding Off-On Volume and Contrast Control.

4 - Disconnect Speaker, Hi Voltage Load, Yoke Plug, CRT Socket & Built In Antenna.

5 - Remove 3 chassis bolts. Remove chassis.

6 - Remove 2 nuts holding Speaker. Remove Speaker.

NOTE. FOR PICTURE TUBE REMOVAL, IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6CB6	6CB6	7CM	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6CB6	6CB6	7CM	
V7	Sound IF Amp.	6AU6	6AU6	7BK	
V8	Ratio Detector	6AL5	6AL5	6BT	
V9	AF Amplifier-Sync. Amplifier	12SN7GT	12SN7GT	8BD	
V10	Audio Output	25L6GT	25L6GT	7AC	
V11	Sync Separator Vert. Oscillator	12SN7GT	12SN7GT	8BD	
V12	Vert. Output	25L6GT	25L6GT	7AC	
V13	Horiz. AFC.-Horiz. Oscillator	12SN7GT	12SN7GT	8BD	
V14	Horiz. Output	25BQ6GT	25BQ6GT	6AM	
V15	Damper	25W4GT	25W4GT	4CG	
V16	HV Rectifier	1B3GT	1B3GT	3C	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V17	17BP4A	17BP4A 17BP4 ① 17BP4 ② 17RP4 ②	12D 12D 12C 12C	① Circuit changes necessary

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲150	150	TCE152-D	AFH4-125		UPT427		FP216.3		
B	▲200	150						TC350		Note #1
C	▲20	150						TC45		
D	100	30								
C2	80	150	TCE155-D	PRS150/100		BR8015A		TC492	TVA-1418	
C3A	▲150	150	TCE156-D	AFH2-23		UPR15D15		FP215	TVL-1430	
B	▲100	25							TVA-1207	
C4	80	150	TCE155-D	PRS150/100		BR8015A		TC492	TVA-1418	
C5	4	25	TCE104-D	PRS150/4		BR550		TC30	TVA-1203	
C6	1000		TCC102-SP	BPD-001	DD-102	TMSD1	801-001	DC-521	5HK-D1	
C7	800		TCC800-G	BPD-0008	DD-801	TMST8	801-001	DC-521	5HK-D1	
C8	1-3		TAS577-G		829-3			CT565A		
C9	29		TCC29-G				N150K-290			
C10	100		TCC100-G	SI100	D6-101	TMST1	GP1K-101	UC-531	5GA-T1	
C11	800		TCC800-G	BPD-0008	DD-801	TMST8	801-001	DC-521	5HK-D1	
C12	800		TCC800-G	BPD-0008	DD-801	TMST8	801-001	DC-521	5HK-D1	
C13	800		TCC800-G	BPD-0008	DD-801	TMST8	801-001	DC-521	5HK-D1	
C14	800		TCC800-G	BPD-0008	DD-801	TMST8	801-001	DC-521	5HK-D1	
C15	800		TCC800-G	BPD-0008	DD-801	TMST8	801-001	DC-521	5HK-D1	
C16	100		TCC100-G	SI100	D6-101	TMST1	GP1K-101	UC-531	5GA-T1	
C17	1-3		TAS577-G		829-3			CT565A		
C18	14.5		TCC14.5-G				NP0K-14R5			
C19	.68		TCC.68-G		TCZ-.68		NP0K-R68			
C20	16.5		TCC16.5-G				NP0K-16R5			
C21	1-3		TAS576-G		829-3			CT565A		
C22	100		TCC100-G	SI100	D6-101	TMST1	GP1K-101	UC-531	5GA-T1	
C23	3.3		TCC3.3-G	SI3.3NP0	TCZ-3.3		NP0K-3R3	ZT-5533	5TCCB-V33	
C24	33		TCC33-G	SI33	D6-330		GP1K-330	UC-5433	5GA-Q33	
C25	12.5		TCC12.5-G				N470K-12R5			
C26	1-3		TAS577-G		829-3			CT565A		
C27	800		TCC800-G	BPD-0008	DD-801	TMST8	801-001	DC-521	5HK-D1	
C28	5		TCC5-G	SI5			GP1K-050	ZT-555	5TCUB-V5	
C29	1.2						NP0K-1R2			Note #2
C30	800		TCC800-G	BPD-0008	DD-801	TMST8	801-001	DC-521	5HK-D1	
C31	5000		TCC502-SP	BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C32A	1000		TCC2-3	BPD-2X001	DD-2-102	TMSDD1	822-001	DCD-521	5HK-2D1	
B	1000									
C33	5000		TCC502-SP	BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C34A	1000		TCC2-3	BPD-2X001	DD-2-102	TMSDD1	812-001	DCD-521	5HK-D1	
B	1000									
C35A	1000		TCC2-3	BPD-2X001	DD-2-102	TMSDD1	812-001	DCD-521	5HK-D1	
B	1000									
C36	5000		TCC502-SP	BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C37	5	500	TCM050-7	1468-000005		5W5V5	GP1K-050	MC205	MS-55	
C38	.1	200	TCP104-1	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C39	.1	200	TCP104-1	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C40	.1	200	TCP104-1	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C41	5	500	TCM050-7	1468-000005		5W5V5	GP1K-050	MC 205	MS-55	
C42	47			SI47	D6-470	5RSQ5	GP1K-470	UC-5447	5GA-Q47	
C43	5000		TCC502-SP	BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C44	5000		TCC502-SP	BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C45	470		TCC471-SP	SI470	D6-470	5RST5	GP1K-470	UC-5347	5GA-Q47	
C46	1000		TCC102-SP	BPD-001	DD-102	TMSD1	801-001	DC-521	5HK-D1	
C47	5000		TCC502-SP	BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C48	1000		TCC102-SP	BPD-001	DD-102	TMSD1	801-001	DC-521	5HK-D1	
C49	.002	600	TCP202-10	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C50	20	500	TCM221-7	1468-00025	D6-221	5W5T25	GP2K-221	MC240	1FM-325	
C51	.005	600	TCP502-10	P688-005	D6-502	PTE6D5	GP3-333-502	PT625	6TM-D5	
C52	470		TCC471-SP	SI470	D6-471	5RST5	GP2K-471	UC-5347	5GA-T47	
C53	.01	400	TCP103-4	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C54	.05	200	TCP503-1	P288-05	DF-503	PJ2S5		PT415	2TM-S5	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C55	470			SI470	D6-471	5RST5	GP2K-471	UC-5347	5GA-T47	
B	2000		TCC683-D	SI2000	D6-202	1WSD2	GP2-333-202	UC-522	5HK-D2	
C	470			SI470	D6-471	5RST5	GP2K-471	UC-5347	5GA-T47	
C56	.01	400	TCPM103-4	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C57	.05	400	TCP503-4	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C58	.1	600	TCPM104-10	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C59	.002	1000	TCP202-13	P1088-002		PTE6D2		PT1622	MB-D2	
C60	.1	200	TCP104-1	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C61	100	500	TCM101-7	1468-0001	D6-101	5W5T1	GP1K-101	MC235	1FM-31	
C62	33	500	TCSM330-9							
C63	100	500	TCSM101-9	1469-0001		5R5T1		MCB235	MS-31	
C64	5	500	TCM050-7	1468-000005		5W5V5	GP1K-050	MC205	MS-55	
C65	.0022	600	TCPM202-10	P688-0022	D6-222	PTE6D22	GP2-333-202		6TM-D22	
C66	.05	400	TCP503-4	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C67	.25	200	TCP254-1	P488-25		PJ2P25		PT4025	2TM-P25	
C68	.02	200	TCP203-1	P288-02	DF-203	PJ2S2		PT412	2TM-S2	
C69	180	500	TCM181-8	1469-0002		5RST2		MCB237	MS-32	
C70	.015	400	TCPM153-4	P488-015		PTE6S15			6TM-S15	
C71	.0015	600	TCPM105-11	P688-0015		PTE6D15			6TM-D15	
C72	470		TCC471-SP	SI470	D6-470	5RST5	GP2K-471	UC5347	5GA-T47	
C73	56		TCM560-7		TCN-56		N750L-560			
C74	.047	400	TCP503-1	P488-047	DF-503	PTE4S47		PT415	4TM-S47	
C75	.1	200	TCP104-1	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C76	.25	400	TCP254-4	P488-25		PTE4P25		PT4025	4TM-P25	
C77	.001	1000		P1088-001		PTE6D1		PT1621	MB-D1	Note #3
C78	20	1000	TCM200-13							
C79	1000		TCCI02-SP	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C80	.01	400	TCPM103-4	689ZGXY-01		PJ4S1			4TM-S1	
C81	.05	400	TCP503-4	P488-05	DF-503	PTE4S5		PT415	4TM-S5	*

* Not used in all models

Note #1. Some models use 150MFD in this application

Note #2 Some models use 1.8MMF in this application (Part #TCC1.8-G)

Note #3 Some models use .0015MFD in this application (Part #TCPM152-11-SP)

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1500Ω	½	TVC-528D	QJ-21 *	RTV-232	SBB-664-S	UF152R	Contrast - Panel - See Note
B	500KΩ	½					UR55A	Volume - Rear
C	Switch						US-26	Attach to R1B
R2A	1Meg	½	TVC-544D	QU-137	AG-61-S	B-69	U-54	Brightness
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
R3A	1Meg	½	TVC-544D	QU-137	AG-61-S	B-69	U-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
R4A	1Meg	½	TVC-545D	QU-137	AG-61-S	AB-89	U-54	Height
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R4A
R5A	5000Ω	½	TVC-5460	QU-114	AG-19-S	AB-10	U-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R5A
R6A	50KΩ	½	TVC-543D	QU-123	AG-44-S	B-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R6A

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B17-110 & P1-102 (Panel)
B13-133 & R1-118 (Rear) & SWITCH 76-1.

Note. SOME MODELS USE ALTERNATE DUAL CONTROL (Part #TVC-557D)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R7	100Ω	20% 1	TRC-101-1-D	BTS-100	Antenna Isolation
R8	470KΩ	20% 1	TRC-474-1-G	BTS-470K	Antenna Isolation
R9	1500Ω		TRC-152-2-G		Parasitic Suppressor
R10	10KΩ		TRC-103-2-G	BTS-10K	RF Amp. Grid
R11	6800Ω		TRC-682-1-G		RF Amp. Screen
R12	6Ω	20% ½	TRC-6A-1-G		Parasitic Suppressor
R13	10KΩ	-	TRC-103-2-G	BTS-10K	Mixer Grid
R14	100KΩ	20% ½	TRC-104-1-G	BTS-100K	Mixer Grid
R15	1500Ω		TRC-152-2-G	BTS-1500	Mixer Plate Decoupling
R16	22KΩ	20% ½	TRC-223-1-G		Osc. Grid
R17	10KΩ		TRC-103-2-G	BTS-10K	Osc. Plate
R18	4700Ω		TRC-472-2	BTS-4700	1st. Video IF Coil Shunt
R19	47Ω		TRC-470-2		1st. Video IF Amp. Cathode
R20	10KΩ		TRC-103-2		2nd. Video IF Coil Shunt
R21	47Ω		TRC-470-2		2nd. Video IF Amp. Cathode
R22	15KΩ		TRC-153-2		3rd. Video IF Coil Shunt
R23	150Ω		TRC-151-2	BTS-150	3rd. Video IF Amp. Cathode
R24	560Ω	20% ½	TRC-561-1	BTS-560	Decoupling
R25	330Ω	20% ½	TRC-331-1	BTS-330	AGC Network
R26	1.8Meg		TRC-185-1	BTS-1.8Meg	AGC Network
R27	120KΩ	20% ½	TRC-124-1	BTS-120K	Series Test Point
R28	5600Ω	½	TRC-562-2	BTS-5600	Video Det. Load
R29	1Meg	20% ½	TRC-105-1	BTS-1Meg	AGC Network
R30	6800Ω	20% 2	TRC-682-7	BTB-6800	Voltage Divider
R31	1Meg	20% ½	TRC-105-1	BTS-1Meg	Video Output Grid - See Note 1
R32	6800Ω	20% 2	TRC-682-7	BTB-6800	Video Output Cathode
R33	220Ω	20% ½	TRC-221-1	BTS-220	Video Output Cathode
R34	6800Ω	1	TRC-682-5	BTA-6800	Video Output Plate
R35	10KΩ	20% ½	TRC-103-1	BTS-10K	Isolation
R36	47KΩ	20% ½	TRC-473-1	BTS-47K	Picture Tube Cathode
R37	100Ω		TRC-101-1	BTS-100	Sound IF Amp. Cathode
R38	1000Ω	20% ½	TRC-102-1	BTS-1000	Sound IF Amp. Decoupling
R39	220Ω	20% ½	TRC-221-1	BTS-220	Balancing
R40	220Ω	20% ½	TRC-221-1	BTS-220	Balancing
R41	330Ω	20% ½	TRC-331-1	BTS-330	Balancing
R42	15KΩ	20% ½	TRC-153-1	BTS-15K	De-emphasis
R43	15KΩ		TRC-153-1	BTS-15K	Ratio Det. Diode Load
R44	15KΩ		TRC-153-1	BTS-15K	Ratio Det. Diode Load
R45	560KΩ		TRC-564-1	BTS-560K	AF Amp. Grid
R46	2200Ω		TRC-222-2	BTS-2200	AF Amp. Cathode

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	IDENTIFICATION CODES
R47	120KΩ	20% ½	TRC-124-1	BTS-120K	AF Amp. Plate
R48	150Ω	20% ½	TRC-151-1	BTS-150	Output Cathode
R49	150Ω	½	TRC-151-1	BTS-150	Output Decoupling
R50	470KΩ	20% ½	TRC-474-1	BTS-470K	Isolation
R51	2.2Meg	20% ½	TRC-225-1	BTS-2.2Meg	Sync Separator Grid
R52	220KΩ	20% ½	TRC-224-1	BTS-220K	Sync Amp. Grid
R53	3300Ω	½	TRC-332-2	BTS-3300	Sync Amp. Cathode
R54	8200Ω	½	TRC-822-1	BTS-8200	Sync Amp. Plate
R55	56KΩ	20% ½	TRC-563-1	BTS-56K	Integrator Network
R56	47KΩ	20% ½	TRC-473-1	BTS-47K	Integrator Network
R57	47KΩ	20% ½	TRC-473-1	BTS-47K	Integrator Network
R58	100KΩ	20% ½	TRC-104-1	BTS-100K	Vert. Feedback
R59	560KΩ	½	TRC-564-1	BTS-560K	Vert. Osc. Grid
R60	560KΩ	½	TRC-564-1	BTS-560K	Vert. Osc. Plate
R61	10KΩ	½	TRC-103-2	BTS-10K	Vert. Peaking
R62	2.7Meg	20% ½	TRC-275-1	BTS-2.7Meg	Vert. Output Grid
R63	560Ω	20% ½	TRC-561-1	BTS-560	Vert. Output Cathode
R64	27KΩ	20% ½	TRC-271-1	BTS-27K	Integrator Network
R65	27KΩ	20% ½	TRC-271-1	BTS-27K	Integrator Network
R66	820KΩ	½	TRC-724-2	BTS-820K	Horiz. AFC Grid
R67	8200Ω	½	TRC-822-1	BTS-8200	Horiz. AFC Filter
R68	150KΩ	½	TRC-154-2	BTS-150K	Horiz. AFC Cathode
R69	68KΩ	½	TRC-683-2	BTS-68K	Horiz. AFC Cathode
R70	150KΩ	½	TRC-154-2	BTS-510K	Horiz. Osc. Grid
R71	8200Ω	½	TRC-822-2	BTS-8200	Horiz. Osc. Transformer Shunt
R72	22KΩ	½	TRC-223-2	BTS-22K	Horiz. Osc. Plate
R73	2.7Meg	20% ½	TRC-275-1	BTS-2.7Meg	Horiz. Feedback
R74	560KΩ	½	TRC-564-1	BTS-560K	Horiz. Feedback
R75	330KΩ	½	TRC-334-2	BTS-330K	Horiz. Feedback
R76	1Meg	½	TRC-105-1	BTS-1Meg	Horiz. Output Grid
R77	6800Ω	2	TRC-682-7	BTB-6800	Horiz. Output Screen
R78	150KΩ	20% 2	TRC-154-7	BTB-150K	Horiz. Blanking Network
R79	3.3Ω	½	TRC-33A-1		HV Rectifier Filament
R80	4.7Ω	5	TRP-28		Surge Limiter - Wire Wound
R81	220Ω	5	TRP-29	1 3/4A-225	Filter - Wire Wound
R82	3Ω	3	TRW-310-11-D		Filament Dropping - Wire Wound
R83	86Ω	10	TRW-860-14-D		Filament Dropping - Wire Wound
R84	42Ω	20	TRP-40-G		Filament Dropping - Wire Wound
R85	1500Ω	½		BTS-1500	Video Output Cathode - See Note 2

Note 1. Some Models use a 1.5Meg Resistor in this application

Note 2. Some Models use a 5000Ω Resistor in this application
Color Adapter shorted out on black and white.

PROPERTY OF
L. F. BLAN...
3924 W...
DENVER, COLO...

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: CORONADO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	440Ω tap ②42Ω	18Ω tap ②9Ω, 13.4Ω SEC. #2	TTR209-D	A-8130	HV0-7 ①			Horiz. Output Trans.
		0Ω						
T2	750Ω	8Ω	C-9-228-5	A-8112	A-3036	TS0-9	A-99X ② Y-19	Vert. Output Trans.
T3A	30Ω		TTR-324-D					Horiz. Deflection Coils
B	50Ω							Vert. Deflection Coils

① Drill new mtg. holes
② Drill one new mtg. hole

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CORONADO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T4	2.7K	3.5Ω	205Ω	.8Ω	TTR-195-2D	A-3332 ②	A-2928	R0-2	S-1X	② Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: CORONADO PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3.5Ω		ST-105 Mod. P5-X	5A07	

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: CORONADO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.225A	31Ω	1 Hy.	TTR-226-D		C-2996 ①	TR-3300 ①	C-23X

① Drill one new mtg. hole

PARTS LIST CONTINUED ON PAGE 15

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	CORONADO PART No.	MERIT PART No.	IRC PART No.	
L2	Ant. Trans.	0Ω	0Ω	TTR251-G			Low Band
L3	Ant. Coil	0Ω		TLF601-G			High Band
L4	Fil. Choke	0Ω		TLF612-G			
L5	RF Choke	.1Ω		TLF602-G			
L6	RF Coil	0Ω		TLF603-G			High Band
L7	RF Coil	0Ω		TLF605-G			Low Band
L8	Mixer Grid	0Ω		TLF604-G			High Band
L9	Mixer Grid	0Ω		TLF606-G			Low Band
L10	Band Pass Coil	0Ω		TLF607-G			
L11	Fil. Choke	0Ω		TLF613-G			
L12	Osc. Coil	0Ω		TLF608-G			High Band
L13	Osc. Coil	0Ω		TLF609-G			Low Band
L14	Conv. Plate	.4Ω		TLF610-G			
L15	1st. Video IF	.4Ω		TLF611-G			
L16	RF Choke	3Ω		TLF140-D		CLA	3.3 Microhenries
L17	RF Choke	1.8Ω				CLA	2.2 Microhenries
L18	Fil. Choke	3Ω		TLF140-D		CLA	3.3 Microhenries
L19	2nd. Video IF	.6Ω	.6Ω	TLF574-D			
L20	RF Choke	3Ω		TLF140-D		CLA	3.3 Microhenries
L21	Fil. Choke	3Ω		TLF140-D		CLA	3.3 Microhenries
L22	3rd. Video IF	.5Ω	.5Ω	TLF593-D			
L23	4th. Video IF	.7Ω	.7Ω	TLF576-D			
L24	Peaking Coil	3.2Ω		TLF535-D	TV-186		
L25	Peaking Coil	10Ω		TLF592-D			Wound on 33KΩ resistor
L26	Peaking Coil	13Ω		TLF573-D			
L27	Sound IF	1.2Ω		TLF579-D	TV-151		
L28	Ratio Det.	5.2Ω	2Ω	TLF594-D			Tertiary Winding .6Ω
L29	Horiz. Osc.	130Ω		TLF580-D			Tap @ 38Ω
L30	Horiz. Stabilizer	33Ω		TLF581-D			
L31	Width Coil	23Ω		TLF553-D	MWC-1		

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	CORONADO PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	
M1	.130A.	TSR107-D	ND-5	5P1	1005A	6S150	
M2	.215A.	TSR103-D	NH-5	6Q4	1090	6S300	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			CORONADO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3AG Slo-Blo Pigtail	1 1/4A. 125V.	TFU5		3151.25		MDV 1 1/4	
M4	3AG Pigtail	1/4A. 250V.	TFU1		318-250		GJV1/4	

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M5	RF Tuner	TTU106-D	Complete with Tubes
M6	Crystal		IN60 (Video Det.)
M7	Crystal		IN60 (Blanking Limiter)
M8	Focus Magnet	TPM103-D	
M9	Ion Trap	TLF583-1-D	
	Knob	TKN260-DS	Off/On Volume
	Knob	TKN265-DS	Contrast
	Knob	TKN266-D	Pointer
	Knob	TKN-268-DS	Range (Hi-Lo)
	Knob	TKN267-DS	Channel Selector

PHOTOFACT* Folder

CROSLEY MODELS DU-20CDM, CHB, CHM, COB, COM (Ch. 357), DU-21CDMI, CDN, CHM, COB, COL, COLB, COM (Ch. 357-1)

L. F. SCHMITT
DENVER, COLORADO

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MODEL DU-21COLB

CROSLEY MODELS DU-20CDM, CHB, CHM, COB, COM (Ch. 357), DU-21CDMI, CDN, CHM, COB, COL, COLB, COM (Ch. 357-1)

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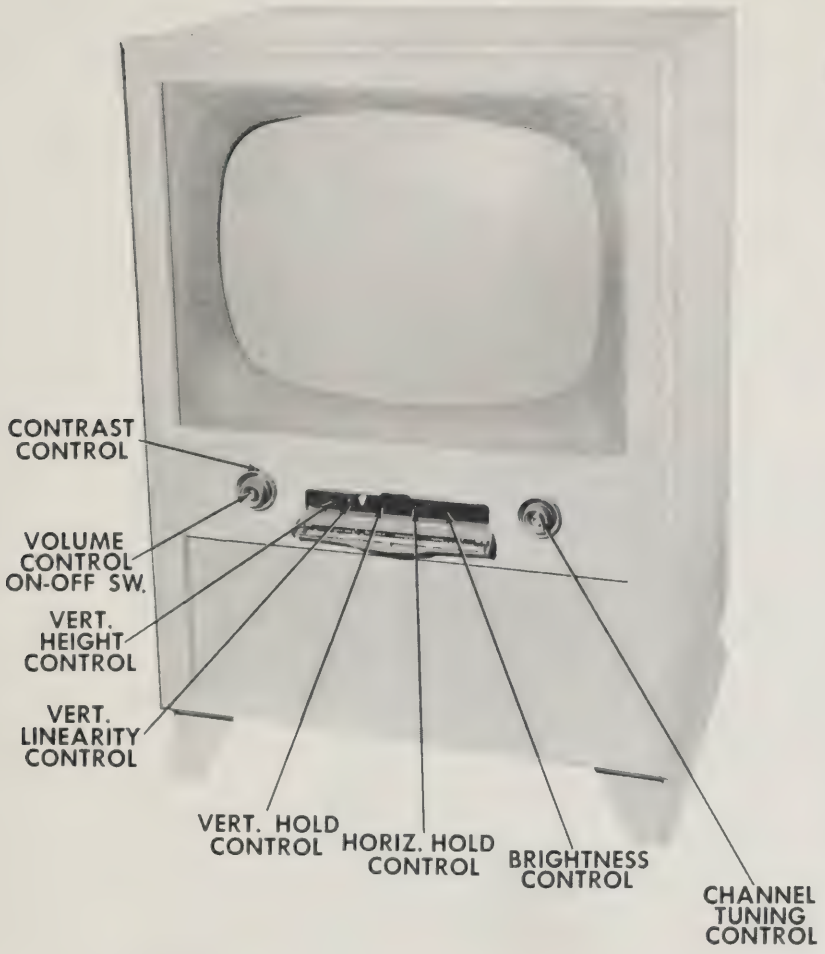
DATE 8-52 SET 175 FOLDER 8

CROSLEY MODELS DU-20CDM, CHB, CHM, COB, COM (Ch. 357), DU-21CDMI, CDN, CHM, COB, COL, COLB, COM (Ch. 357-1)



CROSLEY DU-21C0LB

TRADE NAME	Crosley Models DU-20DCM, DHB, CHM, COB, COM, (Ch. 357), DU-21CDMI, CDN, CHM, COB, COL, COLB, COM
MANUFACTURER	Crosley Corp., 1329 Arlington St., Cincinnati, Ohio (Ch. 357-1)
TYPE SET	Television Receiver
TUBES	Twenty-Two
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 continuous tuning

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CROSLEY MODELS DU-20CDM, CHB, CHM, COB, COM (Ch. 357), DU-21CDMI, CDN, CHM, COB, COL, COLB, COM (Ch. 357-1)

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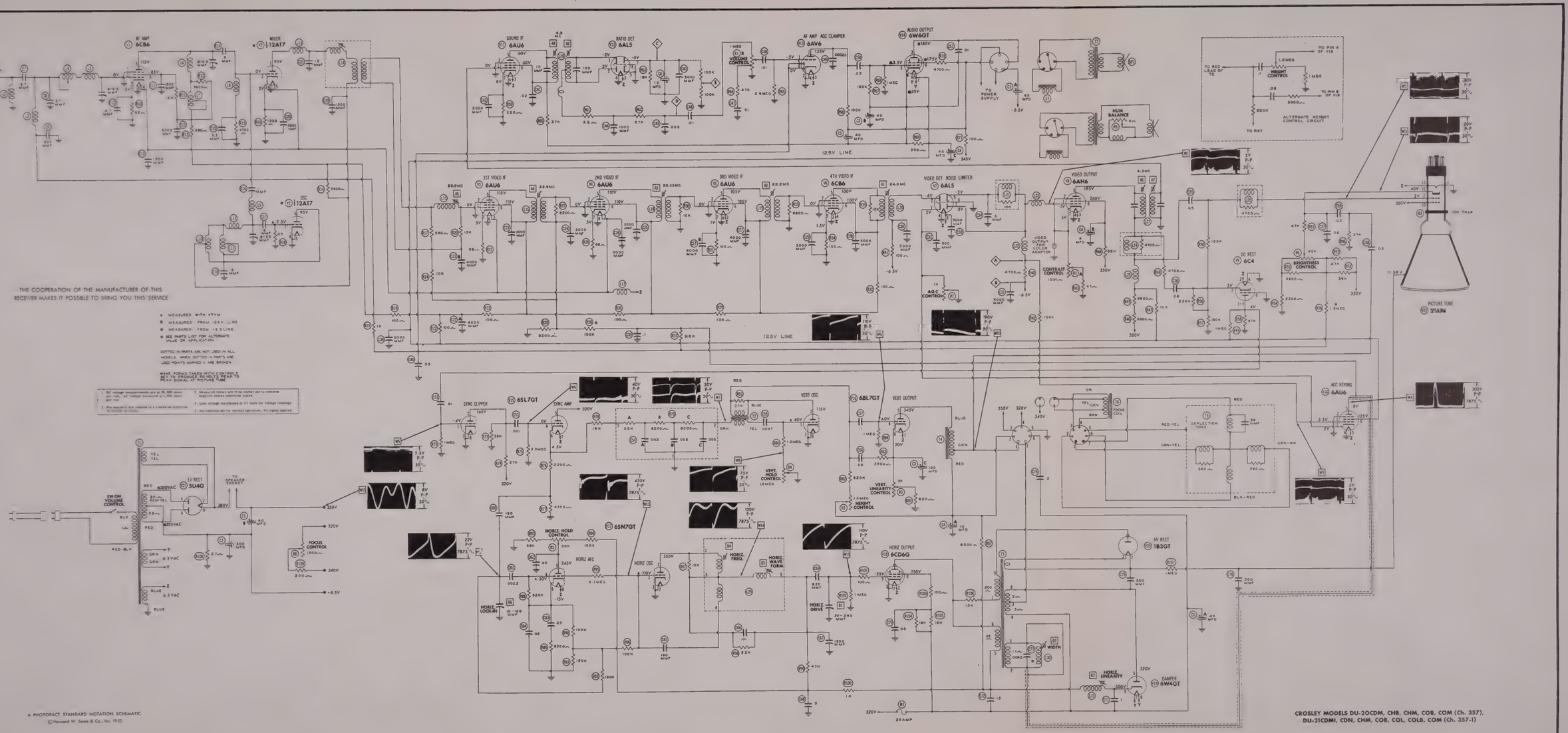

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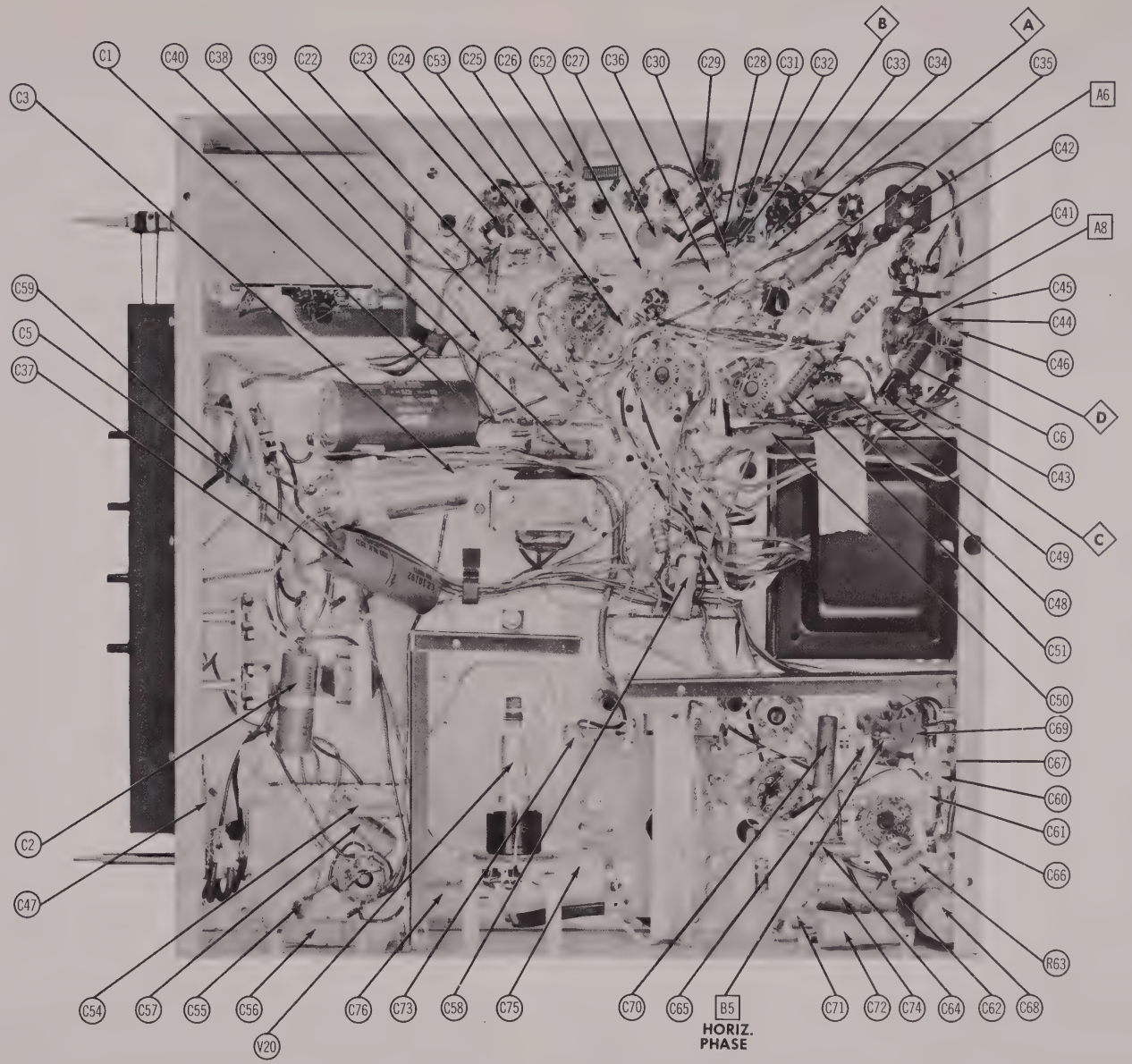
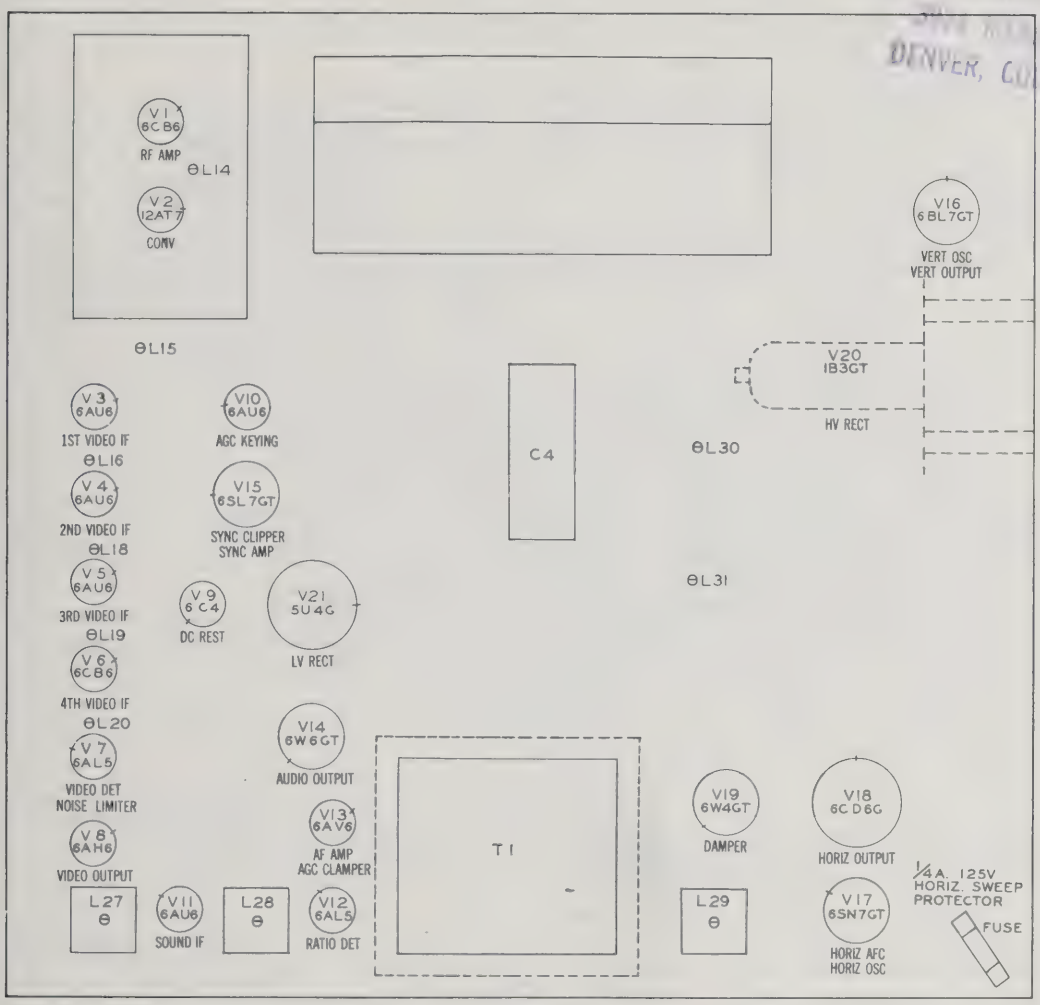
CROSLEY MODELS DU-20CDM, CHB, CHM, COB, COM (Ch. 357), DU-21CDM1, CDN, CHM, COB, COL, COLB, COM (Ch. 357-1)

CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound - V21

LOSS OF PICTURE OR SOUND
No pic, No sound, Has raster - V2, V3, V4, V5, V6, V7, V8, V14
No pic, No sound, Has snow - V1, V2, V3
No pic, Has sound, Has raster - V8, V9, V22
Has pic, No sound - V11, V12, V13, V14
Overloaded picture - V7, V10

SYNC FAILURE
No Vert. sync, - V15, V16
No Hor. sync. - V15, V17
No Vert. or Hor. sync. - V9, V15

SWEEP FAILURE
No Raster, has sound - V17, V18, V19, V20, V22, Fuse (M1)
No Vertical deflection - V16
Poor Vert. Linearity or foldover - V16
Poor Horiz. linearity or foldover - V17, V18, V19
Narrow picture - V17, V18, V19, V21
Vert. off freq. - V16
Horiz. off freq. - V17

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.
Turn the tuning control fully clockwise and set the right hand end of the pointer saddle $\frac{1}{2}$" from right hand end of the dial back plate.

VIDEO IF ALIGNMENT

Connect a 5000Ω control across R108. Connect the center tap of the control to the orange AGC lead on the terminal board near L16 and adjust the control for -3.5 volts bias.
During alignment the common lead of the VTVM is at a potential of -6 volts with respect to chassis.
Avoid grounding the VTVM case.
Remove the RF amplifier tube (V1) from its socket to eliminate spurious responses.
Set the tuner at a non-interferring point near the low frequency end of range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over converter tube (V2). Low side to chassis.	24MC (unmod.)	Tune to point of non-interference.	DC probe to Point ◇A. Common to Point ◇B.	A1	Adjust for maximum deflection. Attenuate generator to maintain 2 volts at VTVM.
2.	"	"	22.2MC	"	"	A2	"
3.	"	"	26.55MC	"	"	A3	"
4.	"	"	22.9MC	"	"	A4	"
5.	"	"	25.5MC	"	"	A5	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6	Direct	High side to an ungrounded tube shield floating over converter tube (V2). Low side to chassis.	24MC (10MC swp.)	21.9MC 22.9MC 24MC 25.5MC 26.4MC	Tune to point of non interference.	Vert. amp. to pin 1 of 6AU6 (V10). Low side to chassis.		Check for response curve similar to fig. 1. If necessary retouch A1 through A5 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Set the contrast control to maximum.
Connect two matched 100KΩ (± 1%) resistors in series from Point ◇C to chassis. The junction of these two resistors is alignment Point ◇E as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to pin 1 (grid) of 6AH6 (V8). Low side to chassis.	4.5MC (unmod.)	Point of non-interference.	DC probe to Point ◇C. Common to chassis.	A6, A7 A8	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to Point ◇D. Common to Point ◇E.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to pin 1 (grid) of 6AH6 (V8). Low side to chassis.	4.5MC (450KC swp.)	4.5MC	Point of non interference.	Vert. amp. to Point ◇C. Low side to chassis.	A6, A7 A8	Disconnect stabilizor capacitor C6. Adjust capacitor C6. Adjust for curve of maximum amplitude and symmetry as per fig. 2.
8.	"	"	"	"	"	Vert. amp. to Point ◇D. Low side to chassis.	A9	Reconnect capacitor C6. Adjust so that 4.5MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

The RF portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

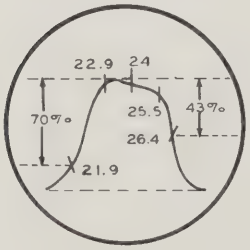


FIG. 1

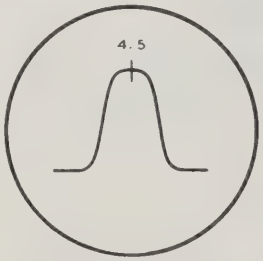


FIG. 2

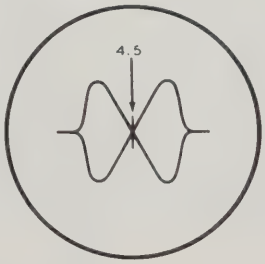
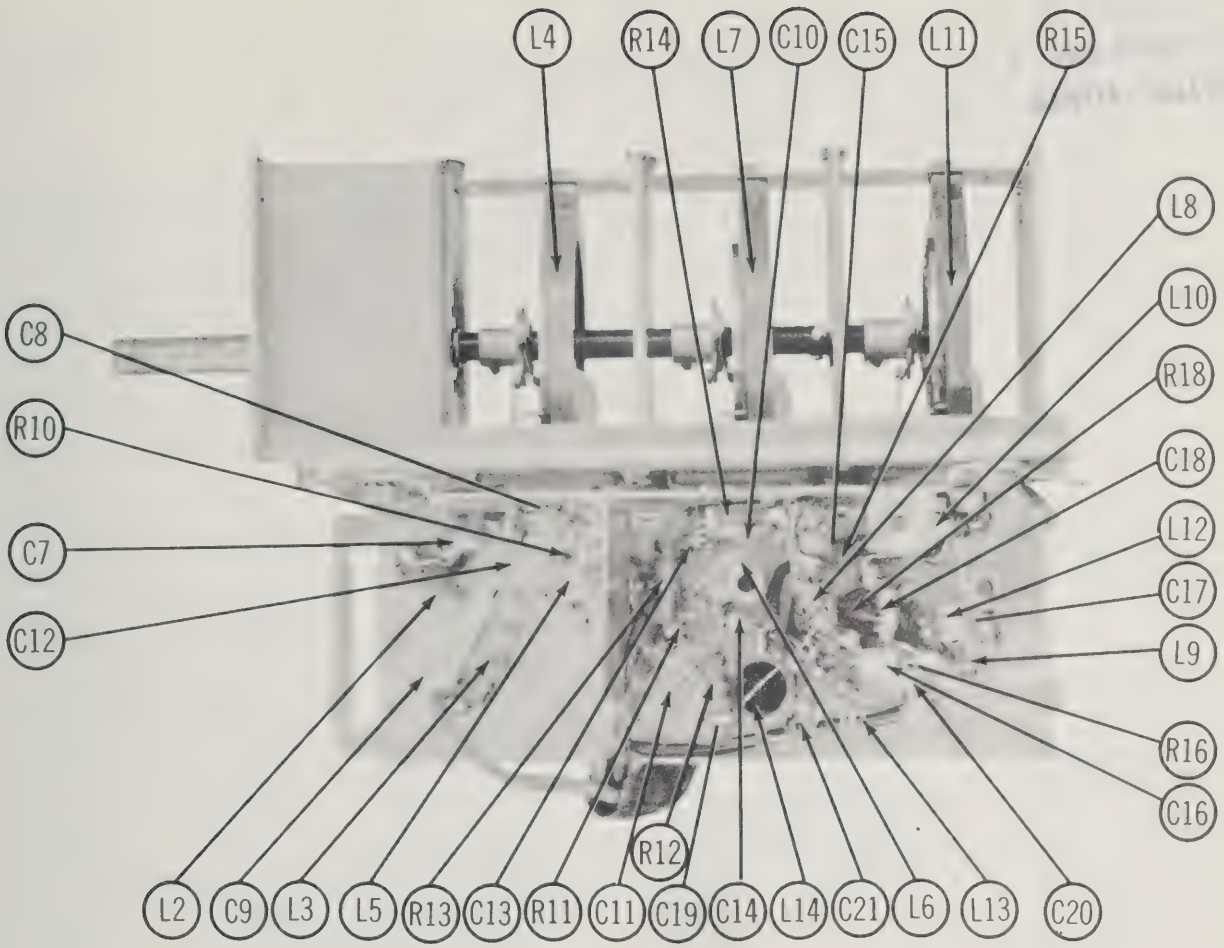
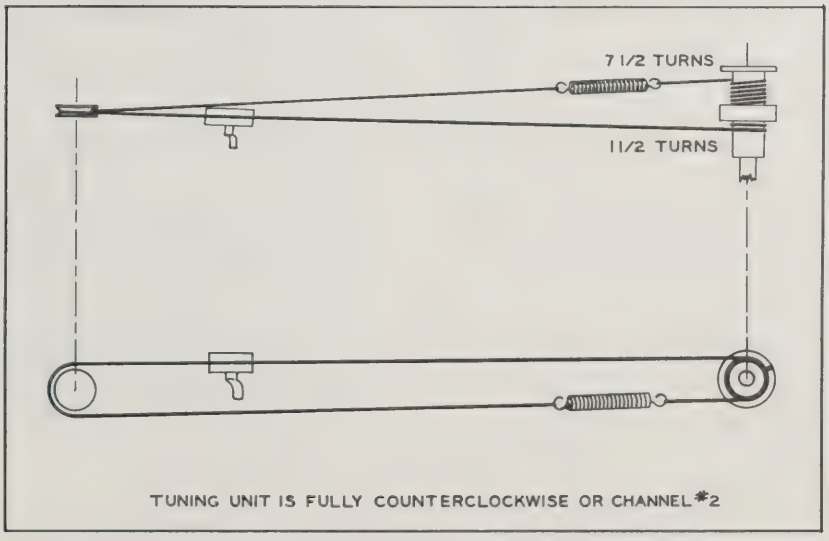


FIG. 3



RF TUNER



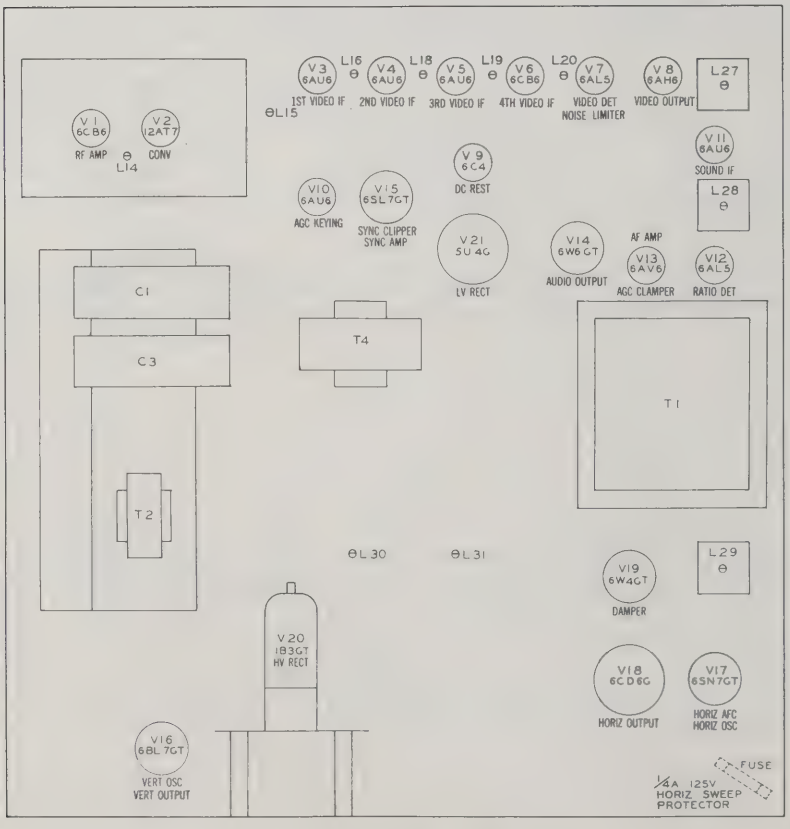
DRIVE CORD STRINGING

RESISTANCE MEASUREMENTS

VOLTAGE READINGS

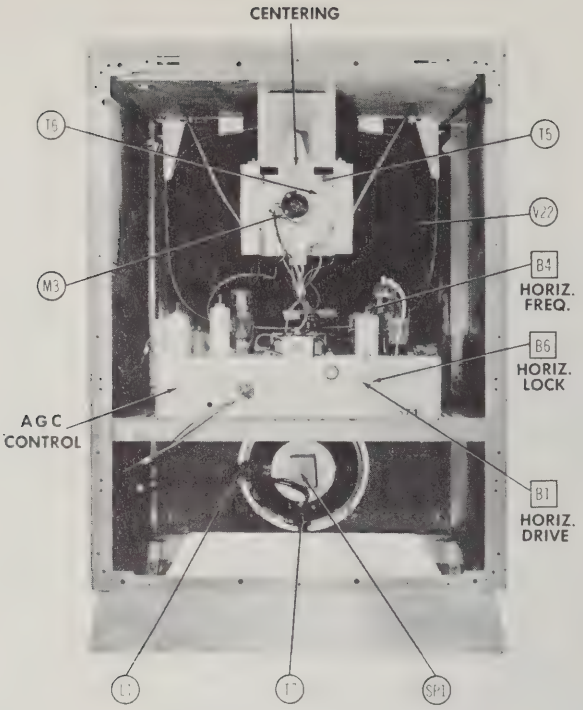
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	600KΩ	82Ω	0Ω	.1Ω	■760Ω	■15KΩ	0Ω		
V 2	12AT7	■5.8KΩ	4.7KΩ	1.2KΩ	0Ω	0Ω	■5.8KΩ	15KΩ	0Ω	.1Ω
V 3	6AU6	18KΩ	0Ω	.1Ω	0Ω	■200Ω	■200Ω	68Ω		
V 4	6AU6	8.22KΩ	0Ω	.1Ω	0Ω	■300Ω	■300Ω	68Ω		
V 5	6AU6	.4Ω	0Ω	.1Ω	0Ω	■400Ω	■400Ω	100Ω		
V 6	6CB6	.5Ω	150Ω	0Ω	.1Ω	■500Ω	■500Ω	0Ω		
V 7	6AL5	310Ω	127Ω	.1Ω	0Ω	4.7KΩ	0Ω	4.7KΩ		
V 8	6AH6	4.7KΩ	140Ω	.1Ω	0Ω	†11KΩ	†82KΩ	140Ω		
V 9	6C4	47KΩ	INF	.1Ω	0Ω	47KΩ	0Ω	370KΩ		
V 10	6AU6	105KΩ	0Ω	.1Ω	0Ω	110KΩ	■0Ω	310Ω		
V 11	6AU6	2.3Ω	0Ω	.1Ω	0Ω	■27KΩ	■27KΩ	220Ω		
V 12	6AL5	INF	INF	.1Ω	0Ω	0Ω	0Ω	18KΩ		
V 13	6AV6	3.9Meg	0Ω	.1Ω	0Ω	600KΩ	600KΩ	†100KΩ		
V 14	6W6GT	INF	■.1Ω	†640Ω	†4.9KΩ	■100KΩ	INF	■0Ω	■390Ω	
V 15	6SL7GT	1Meg	†20KΩ	0Ω	3.3Meg	†300Ω	6.9KΩ	.1Ω	0Ω	
V 16	6BL7GT	2Meg	#1.4Meg	0Ω	1Meg	#9KΩ	1.5KΩ	.1Ω	0Ω	
V 17	6SN7GT	250KΩ	#48KΩ	0Ω	850KΩ	105KΩ	300KΩ	0Ω	.1Ω	
V 18	6CD6G	INF	.1Ω	0Ω	1Meg	1Meg	†9.3KΩ	0Ω	†9.4KΩ	TOP CAP #44Ω
V 19	6W4GT	INF	INF	190KΩ	INF	†307Ω	INF	■0Ω	■.1Ω	
V 20	1B3GT	PINS 1 THRU 8 HAVE INF RESISTANCE								TOP CAP #15KΩ
V 21	5U4G	INF	18KΩ	.1Ω	47Ω	■0Ω	49Ω	■0Ω	18KΩ	
V 22	21AP4	0Ω	250KΩ	PIN 10 †93Ω	PIN 11 50KΩ	PIN 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V21
# MEASURED FROM PIN 3 OF V19
■ MEASURED FROM 125 VDC LINE



BOTTOM VIEW

TUBE PLACEMENT CHART



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

The horizontal drive trimmer (B1) should be turned counter-clockwise until the picture width starts to decrease or until a compression of the center of the picture is noted, whichever condition occurs first.
If the horizontal linearity of the center of the picture changes with the contrast control setting of B1 should be turned slightly clockwise to correct that condition.
The point of best horizontal linearity coincides with the point of least plate dissipation of the horizontal output tube. That condition should be obtained when the horizontal linearity slug (B2) is at maximum counter-clockwise rotation. Any change in setting of B2 will necessitate a readjustment of B1. Adjust the width slug (B3) for a picture which fills the mask horizontally.

HORIZONTAL OSCILLATOR ADJUSTMENT

Turn the set on and tune in a TV station, preferably a test pattern.
Adjust the contrast control for normal contrast.
Turn the horizontal hold control to the middle of its range and adjust the horizontal frequency slug (B4) until the picture is in sync.
Connect the vertical input lead of an oscilloscope through a 10MMF capacitor to terminal 5 of L29. Connect the low side to chassis.
Adjust the horizontal waveform slug (B5) until the broad and narrow peaks of the observed waveform are of equal height as shown in fig. 4. If necessary during adjustment of B5, keep the picture in sync by adjusting B4.
Turn the horizontal hold control fully clockwise. Turn B4 counter-clockwise until picture loses sync, then clockwise until picture is just ready to fall into sync as indicated by one vertical or diagonal blanking bar.
Turn the horizontal hold fully counter-clockwise.
The picture should normally be in sync.
Momentarily interrupt the signal by tuning to another channel and back again. If more than 7 bars are present adjust the horizontal lock trimmer (B6) slightly counter-clockwise until 5 to 7 bars appear.
If less than 5 bars are present adjust B6 slightly clockwise. Repeat the adjustment of B4 and the lock trimmer check.
The sync range of the horizontal hold control should normally be between 120 degrees and 220 degrees of rotation.

AGC ADJUSTMENT

Tune in a TV station with a weak signal and adjust the AGC threshold level control at the rear of chassis to the point where receiver begins to overload with contrast control set at maximum.
If the receiver overloads on a strong signal correct by turning the contrast control towards mimimum.

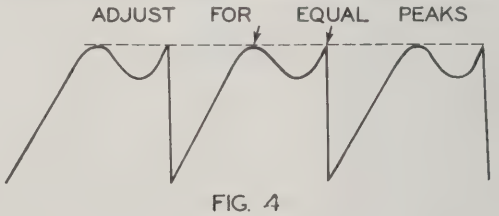
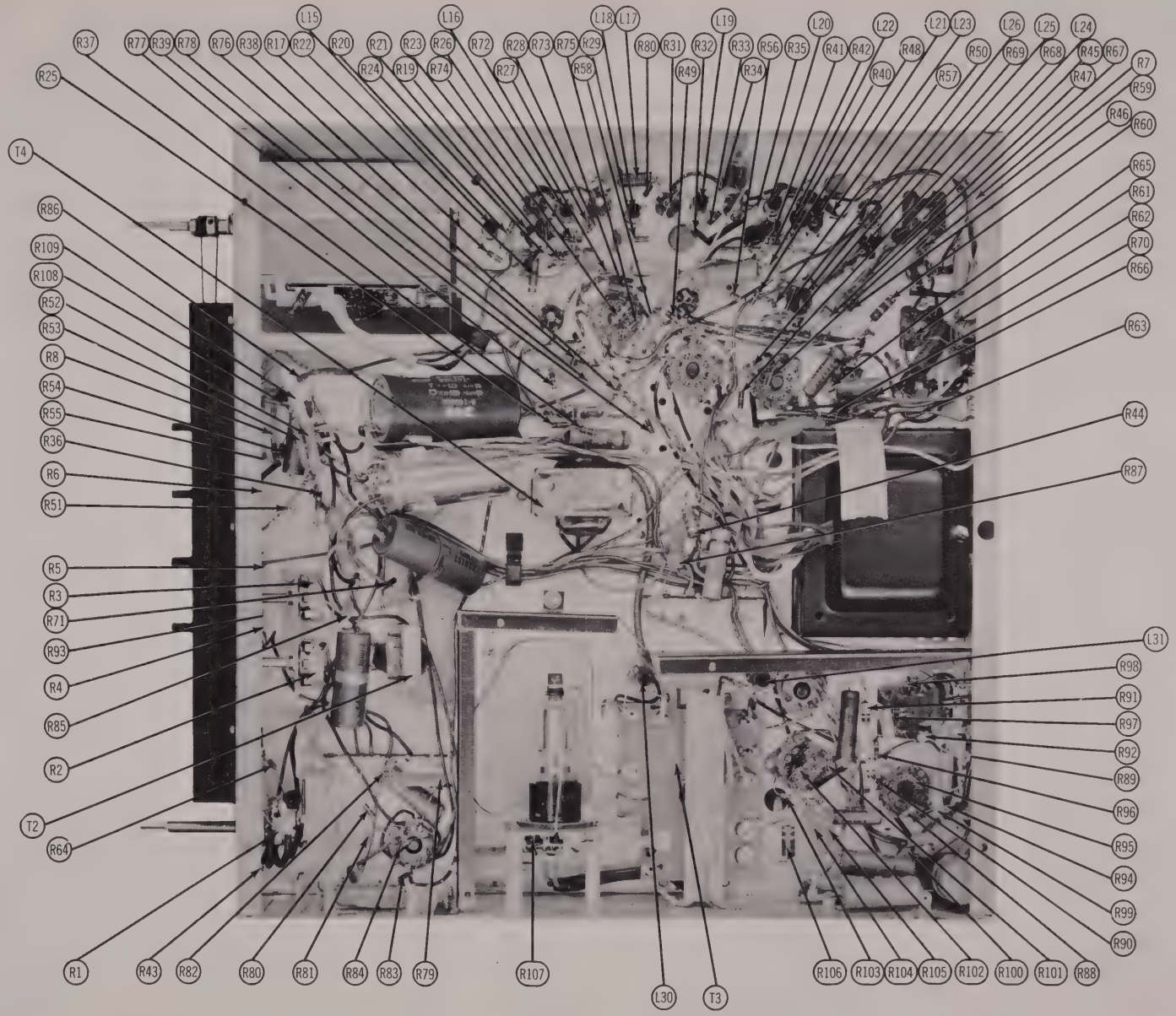


FIG. 4

DISASSEMBLY INSTRUCTIONS

1. Remove 3 push on type control knobs from front panel.
2. Remove 7 metal screws. Remove hinged back cover.
3. Disconnect built-in antenna, speaker, CRT socket, yoke plug, focus plug and HV lead.
4. Remove 4 chassis bolts. Remove chassis.
5. Remove 4 nuts holding speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS DESCRIBED ABOVE.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No	USE	REPLACEMENT DATA: CROSLEY Part No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V 1	RF Amplifier	6CB6	6CB6	7CM	
V2A	Converter	12AT7	12AT7	9A	
B	Converter	12AV7	12AV7	9A	
V3	1st. Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd. Video IF Amp.	6AU6	6AU6	7BK	
V6	4th. Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Detector-Noise Limiter	6AL5	6AL5	6BT	
V8	Video Output	6AH6	6AH6	7BK	
V9	DC Restorer	6C4	6C4	6BG	
V10	AGC Keying	6AU6	6AU6	7BK	
V11	Sound IF Amp.	6AU6	6AU6	7BK	
V12	Ratio Detector	6AL5	6AL5	6BT	
V13	AF Amplifier-AGC Clamper	6AV6	6W6GT	7BT	
V14	Audio Output	6W6GT	6W6GT	7AC	
V15	Sync Clipper - Sync Amplifier	6SL7GT	6SL7GT	8BD	
V16	Vert. Oscillator - Horiz. Oscillator	6SL7GT	76BL7GT	8BD	
V17	Vert. Output - Horiz. AFC - Horiz. Oscillator	6SN7GTA	6SN7GTA	8BD	
V18	Horiz. Output	6CD6GT	6CD6GT	5BT	
V19	Damper	6W4GT	6W4GT	4CG	
V20	HV Rectifier	1B3GT	1B3GT	3C	
V21	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: CROSLEY Part No.	REPLACEMENT DATA: SYLVANIA Part No.	RTMA BASE TYPE	NOTES
V22	21AP4	21AP4	12D	① Circuit changes necessary
		20CP4	12D	② 3/8" Longer
		20CP4A ①	12D	
		20DP4A ① ②	12D	
		20HP4 ① ③	12C	
		20HP4A ① ②	12C	
		20LP4 ① ②		
		20MP4 ① ③	12C	
		20DP4 ②	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C1A	▲40	475	B-151693	AFH2-72		UP4450		FP262	TVL-2830	
B	▲40	475								
C2	500	10	B-149038	PRS12/500		BRH125A		TC1505	TVA-1132	
C3A	▲40	475	B-151695	AFH3-192		UPT303		FP375	TVL-3764	
B	▲40	250								
C	▲100	50								
C4A	▲10	475	B-151694	AFH3-53		UPT432		FP260 TC80	TVL-4840	
B	▲4	350								
C	▲40	300								
C5	40	300	B-151558	PRS450/40		BR4035		TC78	TVA-1611	
C6	10	25	B-149211	PRS25/10		BR102A		TC22	TVA-1204	
C7	27		C-137727-49				N080-331-270			
C8	27		C-137727-49				N080-331-270			
C9	1500		C-137727-113	SII500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C10	5000		C-137727-48	SI5000	D6-502	TM5D2	GP2-333-502	UC-525	5HK-D5	
C11	1500		C-137727-113	SII500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C12	4.7		W-137398-6	SI4.7NP0	TCZ-4.7		NP0K-4R7	Z7-5547	57CCB-V47	
C13	1500		C-137727-113	SII500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C14	6		C-137727-106				N330K-060			
C15	3.3		W-137395-5	SI3.3NP0	TCZ-3.3		NP0K-3R3	Z7- 5533	57CCB-V33	
C16	1		W-137398-2		TCZ-1		NP0K-010		57CCB-V1	
C17	6		C-137727-106				N330K-060			
C18	6		C-137727-106				N330K-060			
C19	1500		C-137727-113	SII500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C20	1500		C-137727-113	SII500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C21	10		C-137727-44	SII0N080			N080-331-100			
C22A	4000		C-144675-6	BPD-2X004	D6-402	TM5DD4	822-004	DCD-524	5HK-2D4	
B	4000				D6-402					
C23	5000		C-144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C24	5000		C-144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C25	5000		C-144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C26	5000		C-144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C27A	4000		C-144675-6	BPD-2X004	D6-402	TM5DD4	822-004	DCD- 524	5HK-2D4	
B	4000				D6-402					
C28	5000		C-144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C29	5000		C-144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C30	5000		C-144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C31	5000		C-144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C32	500		C-144675-21	SI500	D6-501	TM5T5	GP2K-501	UC-535	5GA-T5	
C33	5000		C-144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C34	5		C- 137727-103	SI5	TCZ-4.7	5WS5V5	GP1K-050	Z7-555	MS-55	
C35	.05	400	39001-17		P488-05	DF-503	PTE4S5		PT415	4TM-S5
C36	.08	400	39001-85							
C37	.08	200	39001-85							
C38	5000		C-144675-2	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C39	.1	400	39001-19		P488-1	DF-104	PTE4P1		PT401	4TM-P1
C40	.05	400	39001-17		P488-05	DF-503	PTE4S5		PT415	4TM-S5
C41	.02	400	39001-80		P488-02	DF-203	PTE4S2		PT412	4TM-S2
C42	5000		C-144675-2		BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5
C43	5000		C-144675-2		BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5
C44	1000	500	C-137727-110		1468-001	D6-102	5WS5D1	GP2L-102	MC235	1FM-21

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CROSLEY Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C45	.005	600	39001-11	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C46	.01	400	39001-13	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C47	.01	400	39001-13	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C48	.01	400	39001-13	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C49	.00025	600	39001-73	1468-00025	D6-251	5WST25	GP2K-251	MC240	6TM-T25	
C50	.05	600	39001-17	P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C51	.01	400	39001-13	P488-01	D8-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C52	.01	400	39477-41	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C53	.001	400	39478-35	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C54A	.002			P688-002		PTE6D2	GP2-333-202	PT622		
B	.005		✱W-149878	P688-005	✱PC-100	PTE6D5	GP2-333-502	PT625	✱101C1	
C	.005			P688-005		PTE6L5	GP2-333-502	PT625		
C55	.0047	600	39478-39	P688-0047	D6-472	PTE6D47	GP2-333-472	PT625	6TM-D47	
C56	.08	400	C-146434-11							
C57	.1	400	39001-19		P488-1	DF-104	PTE4P1		PT401	4TM-P1
C58	.03	600	39001-82		P688-03		PTE6S3		PT613	6TM-S3
C59	.03	600	39001-82		P688-03		PTE6S3		PT613	6TM-S-3
C60	180	500	B-137498-24		1469-0002	D6-181	5RST2	GP2K-181	MCB237	MS-32
C61	.0022	600	39477-37		P688-0022	D6-222	PTE6D22	GP2-333-222	PT622	6TM-D22
C62	.05	600	39001-17		P688-05	DF-503	PTE6S5		PT615	6TM-S5
C63	.25	200	39001-87		P488-25		PJP25		PT4025	2TM-P25
C64	.02	200	39001-80		P488-02	DF-203	PJ252		PT412	2TM-82
C65	180	500	B-137498-65							
C66	.01	400	C-146813-2		P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1
C67	1300	500	B-137498-53							
C68	.5	600	B-148317-5		684-5		PTE6P5		TP432	
C69	820	500	B-137498-56							
C70	.05	400	39001-17		P488-05	DF-503	PTE4S5		PT415	4TM-S5
C71	.1	400	C-146434-3		P488-1		PTE4P1		PT401	4TM-P1
C72	.15	400	C-146434-10		P488-15		PTE4P15		TP417	4TM-P15
C73	.0082	1000								Note #1
C74	.2	200	B-149488-2		P488-22		PTE4P22		TP429	2TM-P22
C75	500	20000	A-151109		HV20A	TV1-502	MM-A20T5	410-501	HV-20035	20DK-T5
C76	500	20000	A-151109		HV20A	TV1-502	MM-A20T5	410-501	HV-20035	20DK-T5

Note #1 Some models use .0068MFD in this application (Part #39478-118)
✱ Items C54A, C54B, C54C, R79A, R79B, R79C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY Part No.	IRC Part No.	CLAROSTAT Part No.	CENTRALAB Part No.	MALLORY Part No.	INSTALLATION NOTES
R1A	1500Ω		C-151111-A	CJ-312 ✱	RTV-327	SBBT-703-S	UF152R	Contrast-Panel
B	1Meg						UR16-T254	Volume-Tapped ② 250KΩ-Rear
C	Switch						US-26	Attach to R1B
R2A	1.5Meg		B-152129	Q11-138	AG-63-S	AB-75	U-155	Height Control
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R2A
R3A	3000Ω		B-151634	Q11-112	AG-15-S	AB-8	U-8	Vert. Linearity Control
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R3A
R4A	1.5Meg		B-148952	Q11-138	AG-63-S	AB-75	U-155	Vert. Hold Control
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R4A
R5A	50KΩ		B-148953	Q11-123	AG-44-S	AB-31	U-35	Horiz. Hold Control
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R5A
R6A	40KΩ		B-148966	Q11-123	AG-43-S	AB-31	U-35	Brightness Control
B	Shaft		Not Req.	Not Req.	RS-2	AK-4	Not Req.	Attach to R6A
R7	1000Ω	1	W-148881					AGC Control - Wire Wound
R8A	1500Ω	4	B-149893		A10-1500	8VP-994	TVF140	Focus Control - Wire Wound
B	Shaft		Not Req.		KS8-3	Not Req.		Attach to R6A
R9	6Ω							Hum Balance Cont. -See Note

✱ CONCENTRIKIT EQUIVALENT -KIT K-2, BASE ELEMENTS & SHAFTS B17-110 & P1-128 (Panel),B13-137X & R1-216 (Rear & SWITCH 76-1).
Note: Not used in all models.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY Part No.	IRC Part No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R9	82Ω		39374-12	BTS-82	RF Amp. Cathode.
R10	15KΩ		39374-39		RF Amp. Screen
R11	5600Ω		39374-34		RF Coil Shunt
R12	560Ω		39374-22	BTS-560	RF Amp. Decoupling
R13	5600Ω		39374-34		Decoupling
R14	4700Ω		39374-33	BTS-4700	Mixer Grid
R15	1200Ω		39374-26	BTS-1200	Mixer Cathode
R16	560Ω		39374-22	BTS-560	Mixer Coil Shunt
R17	15KΩ		39374-39		Osc. Grid
R18	100Ω	20%	39373-14	BTS-100	Decoupling
R19	15KΩ	5%	39375-77		1st Video IF Amp. Grid
R20	68Ω		39374-11		1st Video IF Amp. Cathode
R21	100Ω		39374-101	BTA-100	Decoupling
R22	100Ω	20%	39373-14	BTS-100	Decoupling
R23	10KΩ		39373-54	BTS-10K	AGC Network
R24	1000Ω	20%	39373-33	BTS-1000	AGC Network
R25	100Ω	20%	39373-14	BTS-100	Decoupling
R26	82Ω	5%	39375-71		2nd Video IF Coil Shunt
R27	68Ω		39374-17		2nd Video IF Amp. Cathode
R28	100Ω	20%	39373-14	BTS-100	Decoupling
R29	10KΩ	5%	39375-73		3rd Video IF Coil Shunt
R30	100Ω		39374-13	BTS-100	3rd Video IF Amp. Cathode
R31	100Ω	20%	39373-14	BTS-100	Decoupling
R32	6800Ω	5%	39375-69		1th Video IF Coil Shunt
R33	150Ω		39374-15	BTS-150	4th Video IF Amp. Cathode
R34	12KΩ	5%	39375-75		5th Video IF Coil Shunt
R35	1.5Meg	5%	39375-125	BTS-1.5Meg	AGC Network
R36	910KΩ	5%		BTS-910K 5%	AGC Network - See Note 1
R37	100KΩ	5%	39375-97	BTS-100K 5%	AGC Network
R38	8200Ω	5%	39375-71	BTS-8200 5%	AGC Network - See Note 2
R39	4700Ω	5%	39375-65	BTS-4700 5%	Video Det. Diode Load
R40	100Ω	20%	39373-14	BTS-100	Bias Network
R41	100KΩ		39374-49	BTS-100K	Isolation
R42	47Ω		39374-9		Video Output Cathode
R43	82KΩ	2	39374-224	BTB-82K	Video Output Screen
R44	3900Ω	5% 1	39375-211	BTA-3900 5%	Video Output Plate

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CROSLEY Part No.	IRC Part No.	IDENTIFICATION CODES
R45	6800Ω 5%	2	39375-385	BTB-6800 5%	Video Output Plate
R46	10KΩ 5%	1	39375-221	BTA-10K 5%	Voltage Divider
R47	4700Ω		39374-33	BTS-4700	Isolation
R48	1Meg		39374-61	BTS-1Meg	Voltage Divider
R49	100KΩ		39374-49	BTS-100K	Picture Tube Grid
R50	47KΩ		39374-45	BTS-47K	Picture Tube Cathode
R51	39KΩ	2	39374-220	BTB-39K	Voltage Divider
R52	47KΩ	2	39374-221	BTB-47K	Voltage Divider
R53	2200Ω		39374-29	BTS-2200	Voltage Divider
R54	6800Ω	1	39374-123	BTA-6800	Brightness Control Shunt
R55	220KΩ		39374-53	BTS-220K	DC Restorer Load
R56	150KΩ		39374-51	BTS-150K	DC Restorer Load
R57	47KΩ		39374-45	BTS-47K	DC Restorer Load
R58	220Ω		39374-17	BTS-220	Sound IF Amp. Cathode
R59	27KΩ		39374-128		Sound IF Amp. Decoupling
R60	2Ω		39374-5		Balancing
R61	27KΩ		39374-42	BTS-27K	De-emphasis
R62	18KΩ		39374-40	BTS-18K	Ratio Det. Diode Load
R63	47KΩ		39374-45	BTS-47K	Tone Compensation
R64	3.9Meg		39374-75	BTS-3.9Meg	AF Amp. Grid
R65	100KΩ		39374-49	BTS-100K	AF Amp. Plate
R66	100KΩ 5%		39375-97	BTS-100K 5%	Voltage Divider
R67	1Meg 5%	2	39375-121	BTS-1Meg 5%	Output Grid
R68	390Ω	2	39374-196	BTB-390	Output Cathode
R69	4700Ω		39374-33	BTS-4700	Output Screen
R70	100Ω 20%		39373-14	BTS-100	Decoupling
R71	1Meg		39374-61	BTS-1Meg	Sync Clipper Grid
R72	56KΩ	1	39374-134	BTA-56K	Voltage Divider
R73	27KΩ	1	39374-130	BTA-27K	Sync Clipper Plate
R74	3.3Meg 20%		39373-100	BTS-3.3Meg	Sync Amp. Grid
R75	2200Ω		39374-29	BTS-2200	Sync Amp. Cathode
R76	4700Ω		39374-33	BTS-4700	Sync Amp. Cathode
R77	18KΩ		39374-40	BTS-18K	Integrator Network
R78A	22KΩ			BTS-22K	Integrator Network
B	8200Ω		✱W-149878	BTS-8200	Integrator Network
C	8200Ω			BTS-8200	Integrator Network
R79	1.2Meg		39374-83	BTS-1.2Meg	Vert. Osc. Grid
R80	27KΩ		39374-42	BTS-27K	Vert. Osc. Transformer Shunt
R81	820KΩ		39374-60	BTS-820K	Vert. Osc. Plate
R82	5600Ω		39374-34	BTS-5600	Vert. Peaking
R83	1Meg		39374-61	BTS-1Meg	Vert. Output Grid
R84	820Ω	1	39374-112	BTA-820	Vert. Output Cathode
R85	27KΩ		39374-42	BTS-27K	Vert. Blanking Network
R86	8200Ω	5	B-13820I-10	1.3/4A-8000	Filter - Wire Wound
R87	820KΩ		39374-60	BTS-820K	Horiz. AFC Grid
R88	8200Ω		39374-36	BTS-8200	Horiz. AFC Filter
R89	150KΩ		39374-51	BTS-150K	Horiz. AFC Cathode
R90	150KΩ		39374-51	BTS-150K	Horiz. AFC Cathode
R91	150KΩ		39374-51	BTS-150K	Horiz. Feedback
R92	68KΩ		39374-47	BTS-68K	Voltage Divider
R93	100KΩ	1	39374-137	BTA-100K	Voltage Divider
R94	2.7Meg		39374-71	BTS-2.7Meg	Voltage Divider
R95	100KΩ 5%		39375-97	BTS-100K 5%	Horiz. Osc. Grid
R96	10KΩ		39374-37	BTS-10K	Horiz. Osc. Transformer Shunt
R97	22KΩ		39374-41	BTS-22K	Horiz. Osc. Transformer Shunt
R98	47KΩ	1	39374-133	BTA-47K	Horiz. Osc. Plate
R99	1000Ω	1	39374-113	BTA-1000	Decoupling
R100	100Ω 20%		39373-14		Parasitic Suppressor
R101	1Meg 20%		39373-92	BTS-1Meg	Horiz. Output Grid
R102	100Ω 20%		39373-14		Parasitic Suppressor
R103	18KΩ	2	39374-216	BTB-18K	Horiz. Output Screen
R104	18KΩ	2	39374-216	BTB-18K	Horiz. Output Screen
R105	15KΩ	2	39374-215	BTB-15K	Current Limiting
R106	1Meg 20%	1	39373-202		HV Filter
R107	27Ω	2	39374-182		Bias Network
R108	200Ω	7	W-148554-3	1 3/4A-200	Focus Coil Shunt - Wire Wound

Note 1. Some Models use a 680KΩ Resistor in this application
Note 2. Some Models use a 10KΩ Resistor in this application
✱ Items R79A, R79B, R79C, C54A, C54B, C54C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CROSLEY Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	TRIAD Part No.
T1	117VAC ② 2A	700VCT @220ADC	5VAC ③ 3A	6.3VAC ① 9.3A SEC. 4 6.3VAC ② 2.4A	C-151612		P-3059		

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: CROSLEY Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	TRIAD Part No.	NOTES
T2	190Ω	720Ω	B-146842-4					Vert. Osc. Trans.
T3	35Ω	200Ω	AD-151802		HVO-7 & MWC-1 ④			Horiz. Output Trans.
		SEC. 2 Ω Tap ② 5Ω						
		SEC. 3 1.1Ω						
		SEC. 4 0Ω						
T4	800Ω Tap ② 14Ω		B-148970	A-8123	A-3037	TSO-5 ①	A-102X	Vert. Output Trans.
T5A	15Ω		AC-148887-12	DY-8	MDF-70	TY-2	Y-12	Horiz. Deflection Coils
B	66Ω							Vert. Deflection Coils
T6	310Ω Tap ② 80Ω, 140Ω		AC-150554-2					Focus Coil

① Mount on top of chassis
④ Replace width coil with MWC-1

PARTS LIST CONTINUED ON PAGE 15

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T7	2.5KΩ	3.3Ω	390Ω	.69Ω	B-151762-B B-151762 ②	A-3849 ①	A-3025 ①	RO-302 ①	S-1X	① Drill one new mtg. hole ② Alternate transformer

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	CROSLEY PART No.	JENSEN PART No.	QUAM PART No.	
SP1	9 10/16"	PM	3.3Ω	152045-1 AD-152023-1 ① 138762-5 ②	ST-119 Mod. P10-T	10A31	① Alternate EM speaker ② Alternate PM speaker

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	CROSLEY PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.225A	93Ω	1.8 Hy.	B-152042-A B-152042 ②	C-2327	C-2994	TR-1733 ①	

① Mount on chassis
② Alternate choke

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	CROSLEY PART No.	MERIT PART No.	IRC PART No.	
L2	Ant. Shunt	.59Ω		B-148936-2		CLA	.82 Microhenries
L3	RF Choke	6.1Ω		B-148936-3		CL-1	8.2 Microhenries
L4	Ant. Coil	0Ω		D-151347			Part of L7 and L11
L5	Ant. End Inductor	0Ω		AW-149071			
L6	RF End Inductor	0Ω		AW-149070			
L7	RF Coil	0Ω		D-151347			Part of L4 and L11
L8	RF Choke	6.1Ω		B-148936-3		CL-1	8.2 Microhenries
L9	Coupling Choke	0Ω		AW-149086			
L10	Osc. Shunt	0Ω		AW-149062			
L11	Osc. Coil	0Ω		D-151347			Part of L4 and L7
L12	Osc. End Inductor	0Ω		AW-149069			
L13	Plate Choke	0Ω		AW-149072			
L14A	Conv. Plate	.5Ω		AC-152048			
B	IF Coupling	.1Ω	.1Ω				Part of L14A
L15	1st. Video IF	.3Ω		AW-146763	TV-102		
L16	2nd. Video IF	.5Ω	.5Ω	AC-147974			
L17	Fil. Choke	0Ω		AW-143934			
L18	3rd. Video IF	.4Ω	.4Ω	AC-152000			
L19	4th. Video IF	.5Ω	.5Ω	AW-147974			
L20	5th. Video IF	.6Ω	.6Ω	AW-148983			
L21	Peaking Coil	9Ω		AC-152006	*TV-184		Wound on 10K Resistor
L22	Peaking Coil	20Ω		AC-152005	TV-188		
L23	Peaking Coil	3.5Ω		AC-152641			
L24	Peaking Coil	8.7Ω		AC-152007			Wound on 4.7K Resistor
L25	Peaking Coil	15Ω		AC-151999	TV-188		
L26	Peaking Coil	8.7Ω		AC-152007			Wound on 4.7K resistor
L27	Sound IF	2.5Ω	2.2Ω	AC-146782	TV-108		Tertiary Winding .4Ω
L28	Ratio Det.	4Ω	.2Ω	C-150394	TV-110		
L29	Horiz. Osc.	130Ω	38Ω	AC-146698	TV-162		
L30	Width Coil	3Ω		AC-151757	MWC-2		
L31	Horiz. Lin.	9Ω		AC-152056	MWC-2		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			CROSLEY PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG S/B	1/4 A. 125V.	W-152419	A-151620	313.250	357001	MDL 1/4	4405

MISCELLANEOUS

ITEM No.	PART NAME	CROSLEY PART No.	NOTES
M2	RF Tuner	AA-152132	
M3	Ion Trap	B-148484	
B1, B6	Trimmer	AA-152150	Horiz. Drive 30-240MMF Two Section Horiz. Lock 10-160MMF
	Knob	AB-151731-1	Contrast (Models DU-20CDM, DU-20CHB, DU-20CHM & DU-20COM)
	Knob	AB-151731-2	Contrast (Model DU-20COB)
	Knob	AB-151732-1	Tuning (Models DU-20CDM, DU-20CHB, DU-20CHM & DU-20COM)
	Knob	AB-151732-2	Tuning (Model DU-20COB)
	Knob	AB-151733-1	Off/On Volume (Models DU-20CDM, DU-CHB, DU-20CHM 2 DU-20COM)
	Knob	AB-151733-2	Off/On Volume (Model DU-20COB)
	Dial Glass	B-152102	
	Escutcheon Dial	D-151453-1	(Models DU-20CDM, DU-20CHB, DU-20CHM, DU-20COM)
	Escutcheon Dial	D-151453-2	(Model DU-20COB)
	Window Frame	A-152497	(Model DU-20CDM)
	Window Frame	A-152552	(Model DU-20CHB)
	Window Frame	A-152604	(Model DU-20CHM)
	Window Frame	A-152351	(Model DU-20COB)
	Window Frame	A-152349	(Model Du-20COM)
	Safety Glass	D-151963-1	(Models DU-20CDM, DU-20CHM & DU-20COM)
	Safety Glass	D-151963-3	(Model DU-20CHB)
	Safety Glass	D-151963-2	(Model DU-20COB)

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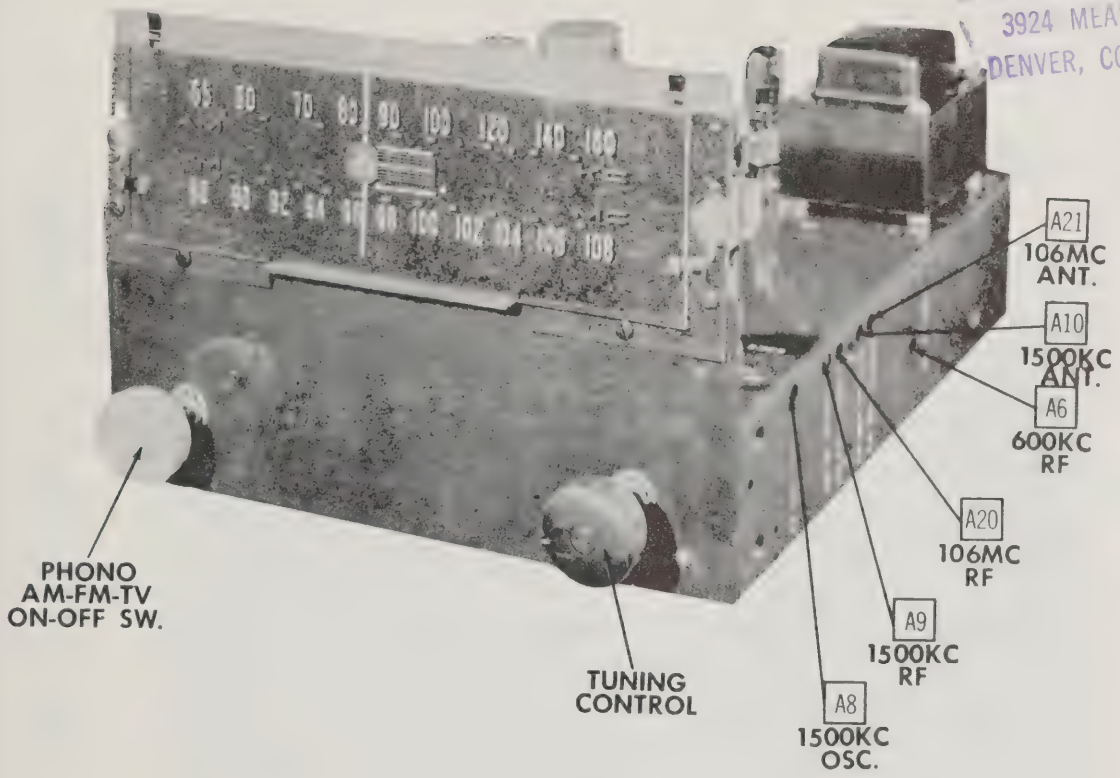
DENVER, COLORADO

DAVID BOGEN
MODEL R-604



DAVID BOGEN
MODEL R-604

TRADE NAME	David Bogen Model R-604
MANUFACTURER	David Bogen Co., Inc., 29 Ninth Ave., New York 14, N.Y.
TYPE SET	AC Operated AM-FM Superheterodyne Tuner With Self Contained Power Supply
TUBES (TEN)	Types 6CB6 FM RF Amp., 6AB4 FM Mixer, 12AT7 FM Osc., 6BA6 AM RF Amp., 6BE6 AM Conv., 6BA6 1st. FM-AM IF Amp., 6AU6 2nd. FM IF Amp., 6AU6 FM Limiter, 6AL5 FM Disc., 6X4 Rect.
POWER SUPPLY	110-120 Volts AC RATING .45 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	530-1650 KC FREQ. MOD. 88-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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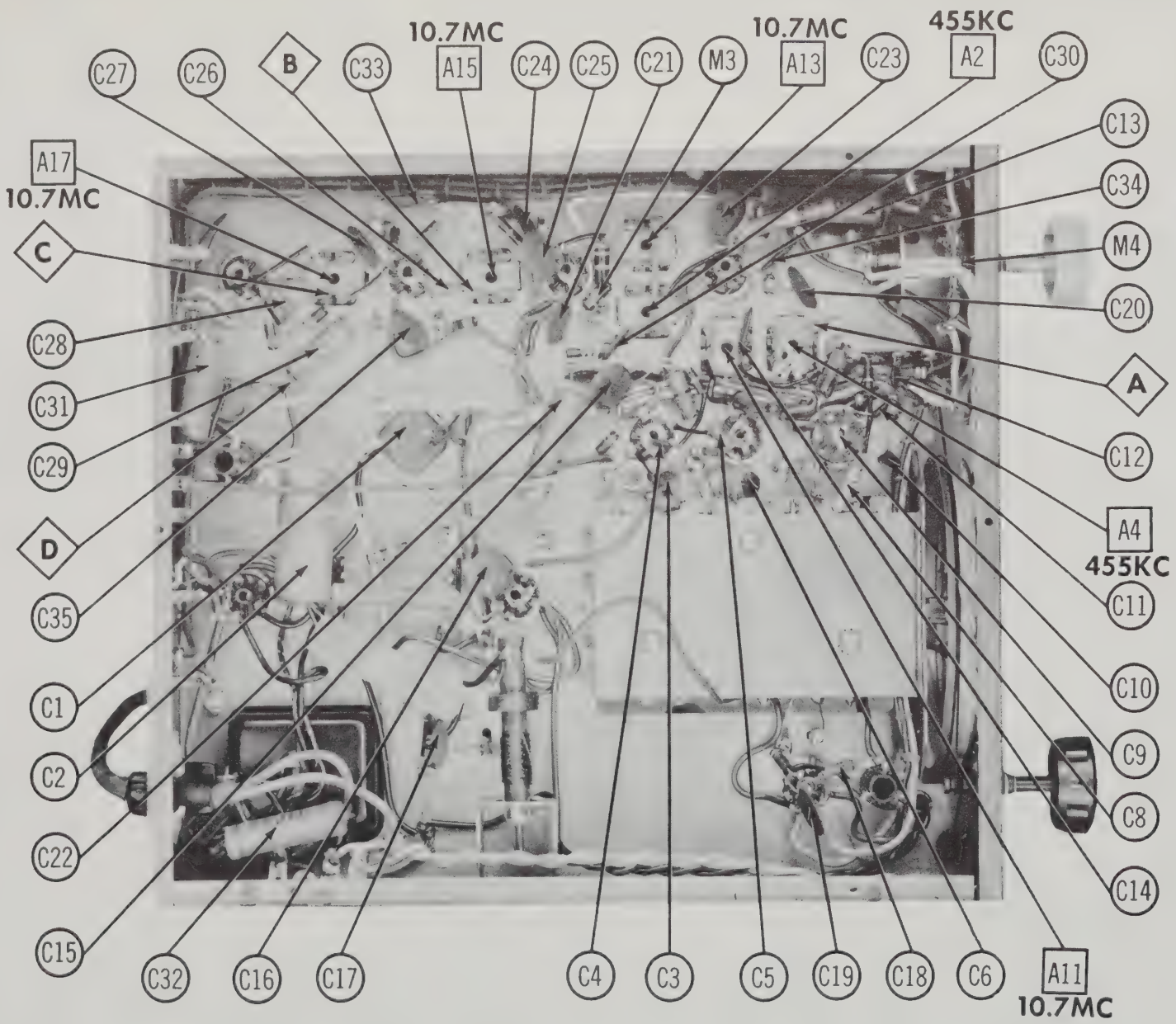
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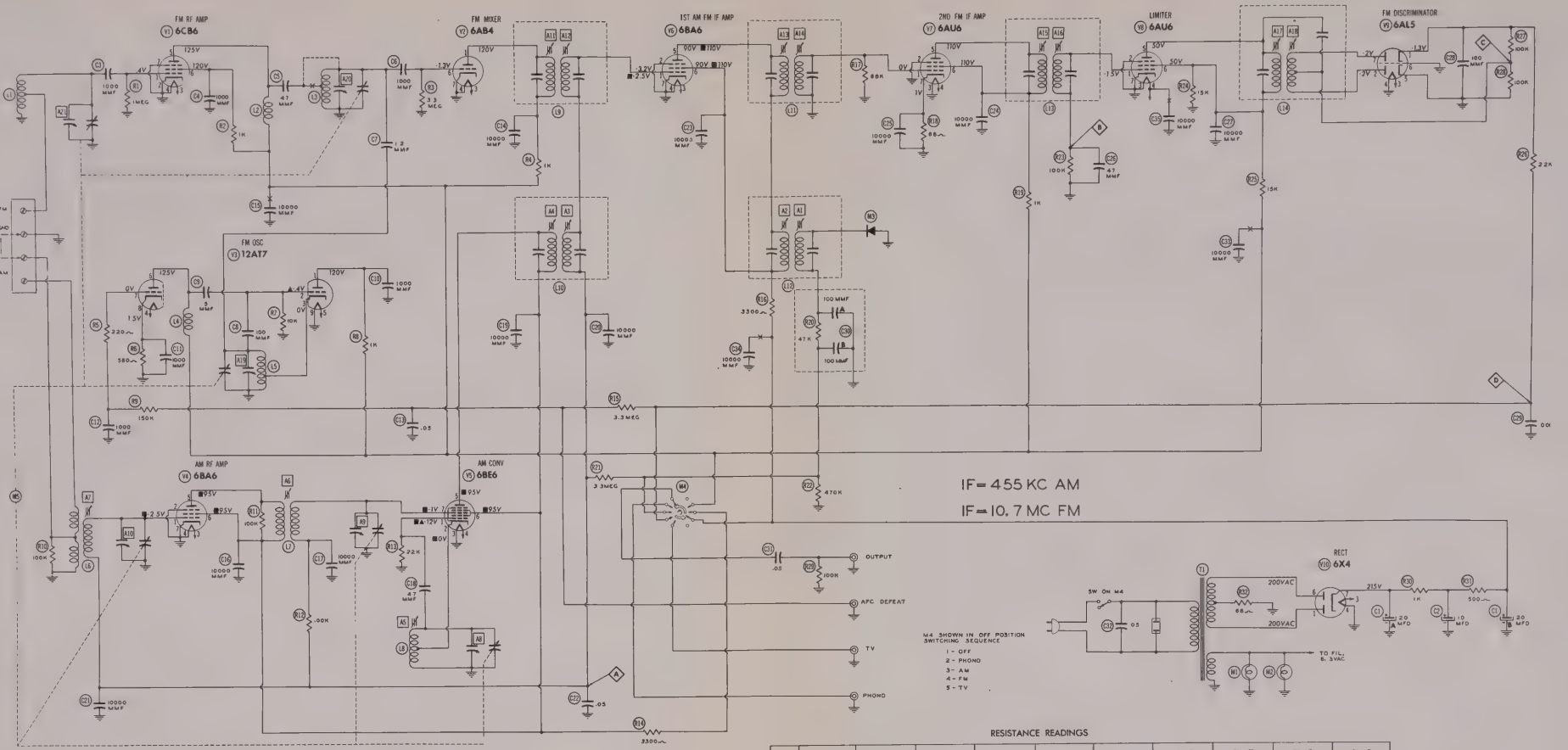

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	1Meg	0Ω	.1Ω	0Ω	†1.5KΩ	†2.5K Ω	0Ω		
V 2	6AB4	†2.5KΩ	0Ω	.1Ω	0Ω	0Ω	3Meg	0Ω		
V 3	12AT7	†2.5KΩ	10KΩ	0Ω	.1Ω	.1Ω	†1.5KΩ	3.3Meg	560Ω	0Ω
V 4	6BA6	3.3Meg	0Ω	.1Ω	0Ω	■†4.8KΩ	■†4.8KΩ	0Ω		
V 5	6BE6	22KΩ	.2Ω	0Ω	.1Ω	■†4.8KΩ	■4.8KΩ	3.4Meg		
V 6	6BA6	3.3Meg	0Ω	.1Ω	0Ω	†4.8KΩ	†4.8KΩ	0Ω		
V 7	6AU6	.6Ω	0Ω	0Ω	.1Ω	†2.5KΩ	†2.5KΩ	68Ω		
V 8	6AU6	100KΩ	0Ω	0Ω	.1Ω	12KΩ	12KΩ	0Ω		
V 9	6AL5	200KΩ	100KΩ	.1Ω	0Ω	0Ω	0Ω	100KΩ		
V 10	6X4	200Ω	.1Ω	.1Ω	0Ω	INF	200Ω	45KΩ		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS NOTED
■ MEASURED IN "AM" POSITION
† MEASURED FROM PIN 7 OF V10
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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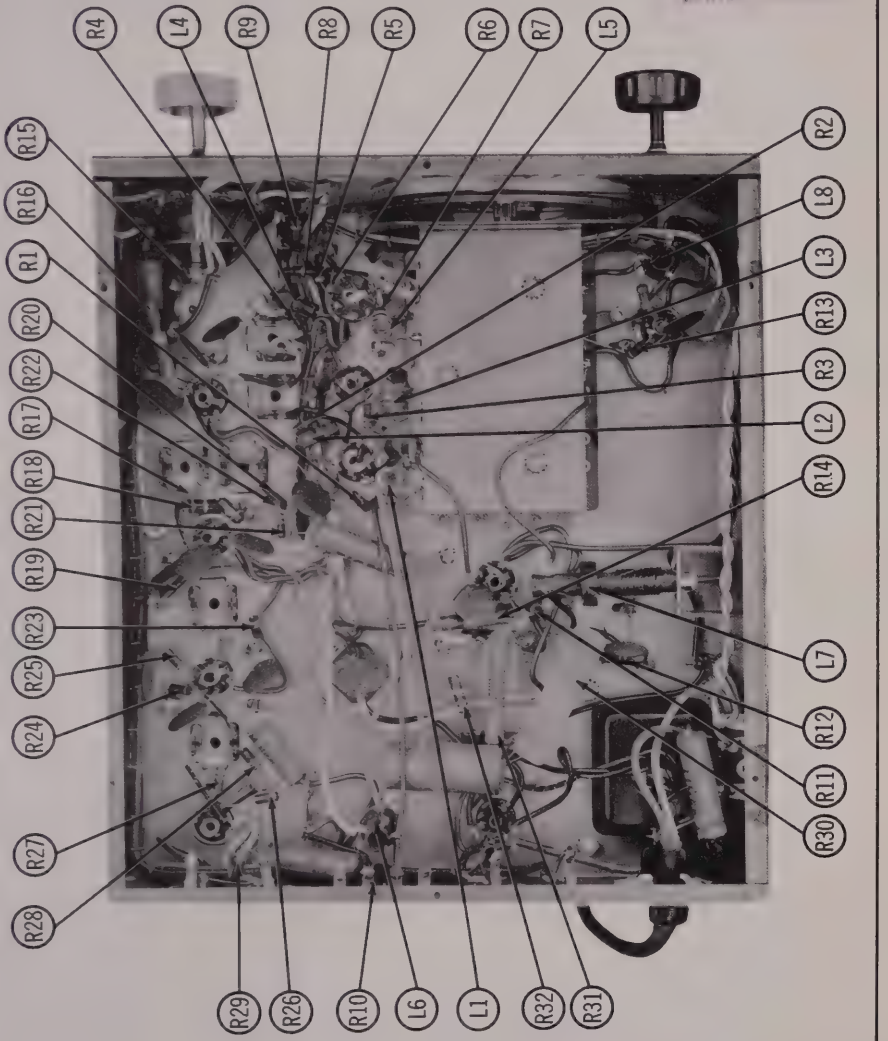
175-9



DAVID BOGEN
MODEL R-604

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn the tuning gang fully open and set the pointer 1¼ inches from the right hand edge of the dial back plate.
During alignment connect a short across the AFC Defeat jack on the rear of the chassis.
Output of signal generator should be no higher than necessary to obtain a reading on VTVM. Use an insulated alignment screw driver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 6BE6 (V5) Low side to chassis.	455 KC (Unmod.)	AM	Any	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	200MMF	High side to AM antenna terminal. Low side to chassis.	600 KC	"	600 KC	"	A5, A6, A7	"
3.	"	"	1500 KC	"	1500 KC	"	A8, A9, A10	Adjust for maximum deflection. Repeat steps 2 and 3.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (Unmod.)	FM	Any	DC probe to point Ⓑ. Common to chassis.	A11, A12 A13, A14, A15, A16	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point Ⓒ. Common to chassis.	A17	"
6.	"	"	"	"	"	DC probe to point Ⓓ. Common to chassis.	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

4.	.01MFD	High side to pin 6 (grid) of 6AB4 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference.	Vert. Amp. thru 100KΩ to point Ⓑ. Low side to chassis.	All thru A16	Adjust for curve of maximum amplitude and symmetry as per fig. 1.
5.	"	"	"	"	"	Vert. amp. thru 100KΩ to point Ⓒ. Low side to chassis.	A17	"
6.	"	"	"	"	"	Vert. amp. to point Ⓓ. Low side to chassis.	A18	Adjust so that 10.7MC occurs at center of crossover lines as per fig. 2. SLIGHTLY retouch A17 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal Low side to chassis.	106MC (Unmod.)	FM	106MC	DC probe to point Ⓑ. Common to chassis.	A19, A20 A21	Adjust for maximum deflection.

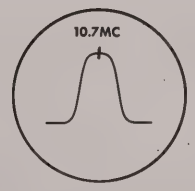


FIG. 1

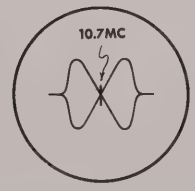


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		David Bogen PART No.	STANDARD REPLACEMENT		
V1	FM RF Amplifier	6CB6	6CB6	7CH	
V2	FM Mixer	6AB4	6AB4	5CE	
V3	FM Oscillator	12AT7	12AT7	9A	
V4	AM RF Amplifier	6BA6	6BA6	7BK	
V5	AM Converter	6BE6	6BE6	7CH	
V6	1st. FM AM IF Amp.	6BA6	6BA6	7BK	
V7	2nd. FM IF Amp.	6AU6	6AU6	7BK	
V8	FM Limiter	6AU6	6AU6	7BK	
V9	FM Discriminator	6AL5	6AL5	6BT	
V10	Rectifier	6X4	6X4	5BS	

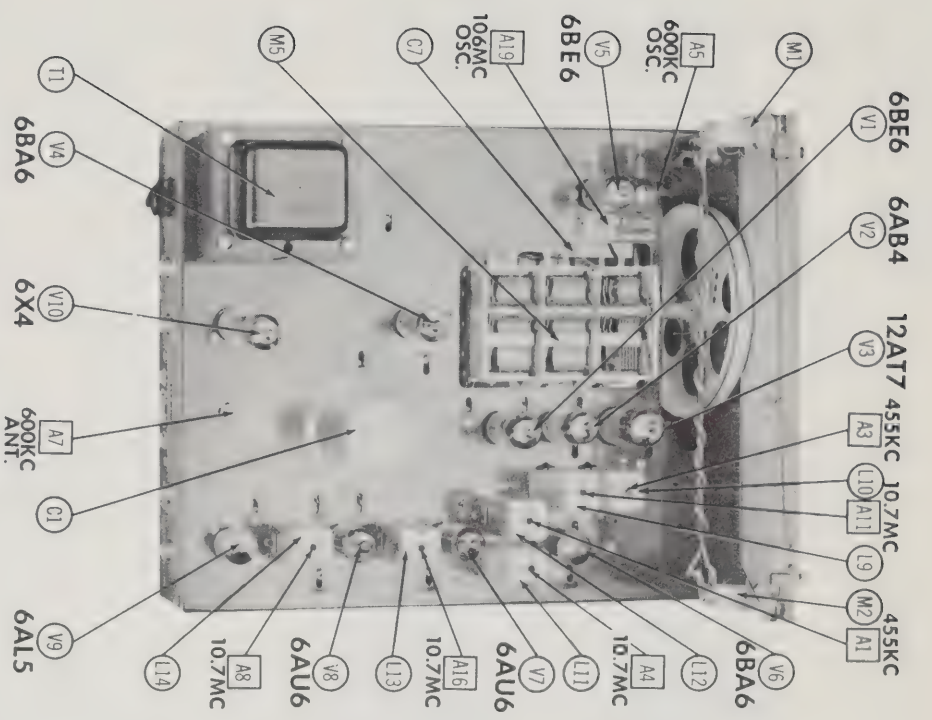
CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	David Bogen PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	▲20	450		AFH3-193		UP2250		FP234	TVL-2755	
B	▲20	450								
C2	10	450		PRS450/10		BR1045A		TC72	TVA-1705	Note #1
C3	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C4	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C5	47			SI47	D6-470	5W5Q5	GP1K-470	UC-5447	5GA-Q47	
C6	1000			BPD-001	DD-102	TM5D1	801-001	D6-521	5HK-D1	
C7	1.2						NP0K-1R2			
C8	100						N330L-101			
C9	5						N330K-050			
C10	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C11	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C12	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C13	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C14	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C15	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	Note #2
C16	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C17	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C18	47			SI47	D6-470	5R5Q5	GP1K-470	UC-5447	5GA-Q47	
C19	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C20	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C21	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C22	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C23	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C24	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C25	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C26	47			SI47	D6-470	5W5Q5	GP1K-470	UC-5447	5GA-Q47	
C27	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C28	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C29	.001	600		P688-01	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C30A	100									Note #3
B	100									Note #3
C31	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C32	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C33	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	Note #2
C34	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	Note #2
C35	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	Note #2

Note #1 Some models use 8MFD in this application.
Note #2 Not used in all models.
Note #3 Items C30A, C30B and R20 are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	David Bogen PART No.	IRC PART No.	
R1	1Meg	½		BTS-1Meg	FM RF Amp. Grid
R2	1000Ω	½		BTS-1000	FM RF Amp. Screen
R3	3.3Meg	½		BTS-3.3Meg	FM Mixer Grid
R4	1000Ω	½		BTS-1000	FM Mixer Plate Decoupling
R5	220Ω	½		BTS-220	FM Osc. Grid
R6	560Ω	½		BTS-560	FM Osc. Cathode
R7	10KΩ	½		BTS-10K	FM Osc. Grid
R8	1000Ω	½		BTS-1000	FM Osc. Plate
R9	150KΩ	½		BTS-150K	AFC Network-See Note 1
R10	100KΩ	½		BTS-100K	Antenna Coil Shunt
R11	100KΩ	½		BTS-100K	AM RF Coil Shunt
R12	100KΩ	½		BTS-100K	AVC Network
R13	22KΩ	½		BTS-22K	AM Osc. Grid
R14	3300Ω	2		BTB-3300	Screen Dropping
R15	3.3Meg	½		BTS-3.3Meg	AFC Network
R16	3300Ω	2		BTB-3300	1st. IF Amp. Decoupling
R17	68KΩ	½		BTS-68K	2nd. FM IF Amp. Grid
R18	68Ω	½			2nd. FM IF Amp. Cathode
R19	1000Ω	½		BTS-1000	2nd. FM IF Amp. Decoupling
R20	47KΩ	½		BTS-47K	Det. RF Filter-See Note 3
R21	3.3Meg	½		BTS-3.3Meg	AVC Network
R22	470KΩ	½		BTS-470K	Diode Load
R23	100KΩ	½		BTS-100K	Limiter Grid
R24	15KΩ	½		BTS-15K	Bleeder
R25	15KΩ	½		BTS-15K	Limiter Decoupling
R26	22KΩ	½		BTS-22K	De-Emphasis
R27	100KΩ	½		BTS-100K	FM Discriminator Diode Load
R28	100KΩ	½		BTS-100K	FM Discriminator Diode Load
R29	100KΩ	½		BTS-100K	Voltage Divider - See Note 2
R30	1000Ω	5		1 3/4A-1000	Filter-Wire Wound
R31	500Ω	7		1 3/4A-500	Filter-Wire Wound
R32	68Ω	½			Current Limiting

Note 1. Some models use a 220KΩ resistor in this application.
Note 2. Some models use a 470KΩ resistor in this application.
Note 3. Items R20, C30A, C30B are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	David Bogen PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ .450A	400VCT @ .053ADC	6.3VAC @ 3.5A			PC-8420	P-3048		

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	David Bogen PART No.	MERIT PART No.	IRC PART No.	
L1	FM Ant. Coil	0Ω		U-402			
L2	RF Choke	.8Ω		U-501		CLA	1 Microhenry
L3	FM RF Coil	0Ω		U-401			
L4	RF Choke	.8Ω		U-501		CLA	1 Microhenry
L5	FM Osc. Coil	0Ω		U-403			
L6	AM Ant. Coil	.2Ω	2.8Ω	U-304			
L7	AM RF Coil	70Ω	3Ω	U-301			
L8	AM Osc. Coil	2.2Ω		U-303			Tap @ .2Ω
L9	1st. FM IF	.6Ω	.6Ω	H-294	FM-254		
L10	1st. AM IF	18Ω	18Ω	H-297	BC-352		
L11	2nd. FM IF	.6Ω	.6Ω	H-355	FM-254		
L12	2nd. AM IF	9.5Ω	9.5Ω	H-356	BC-353		
L13	3rd. FM IF	.6Ω	.6Ω	H-355	FM-254		
L14	Discr. Trans.	.6Ω	.8Ω	H-295			

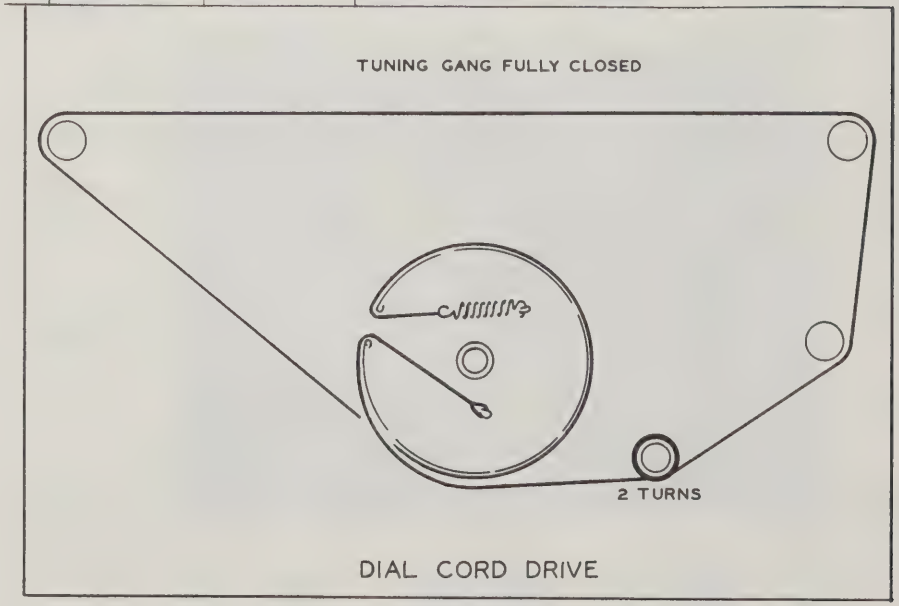
PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHTS

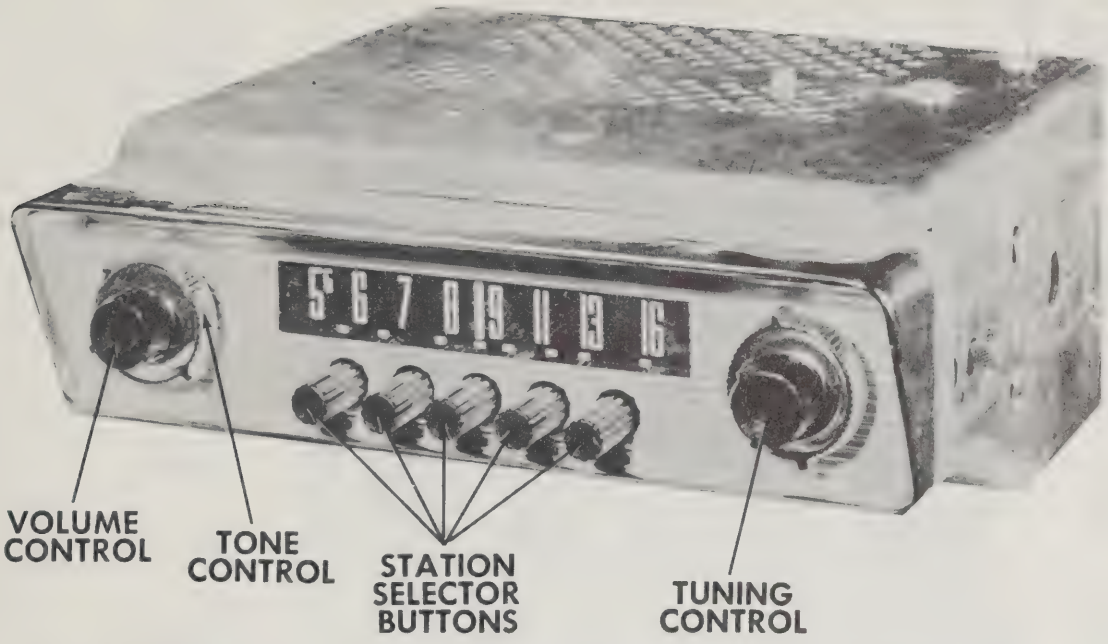
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					David Bogen PART No.		
M1	Bayonet	7.5	.2	White			Type #51
M2	Bayonet	7.5	.2	White			Type #51

MISCELLANEOUS

ITEM No.	PART NAME	David Bogen PART No.	NOTES
M3	Crystal		Type 1N51
M4	Switch	S-370A	Function Selector
M5	3 Gang Var. Cap.	C-619B	(26-532MMF, 23-527MMF, 31-215MMF)



FORD
MODEL 2MF (FAC-18805-A)



TRADE NAME	Ford Model 2MF (FAC-18805-A) (For 1952 Ford Automobiles)
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Ill.
TYPE SET	Battery Operated Custom Built Automobile Superheterodyne Receiver
TUBES (SIX)	Types 6BA6 RF Amp., 6BE6 Conv., 6BA6 IF Amp., 6AT6 Det.-AVC-AF Amp., 6AQ5 Audio Output, 6X4 Rectifier.
POWER SUPPLY	6 Volt Storage Battery — RATING 7 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Before performing step 2 turn tuner cores out to project 1 3/8" from ends of coil forms.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer tune to a 1300KC signal and rotate the pointer adjust cam until the pointer coincides with the 1300KC marker on the dial scale.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	265KC (400~ mod.)	High frequency end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. Repeat adjustments for greatest accuracy.
2.	Fig.1	High side thru dummy to ant. receptacle. Low side to chassis.	1608KC	"	"	A5, A6, A7	Adjust in order given for maximum output.
3.	"	"	1300KC	Move tuner carriage "in" 21/64" from high frequency end stop.	"	A8, A9, A10	Adjust in order given for maximum output. Repeat steps 2 and 3 until no change is noted.
4.	"	"	600KC	Tune to 600KC signal	"		Set signal generator to 4 micro volts output, short out the AVC and adjust the sensitivity control, R2, for 1 watt output. (1.78 volts on output meter).

With receiver aligned and installed and antenna fully extended, tune in a weak signal at approximately 1400KC and peak A7 for maximum volume.

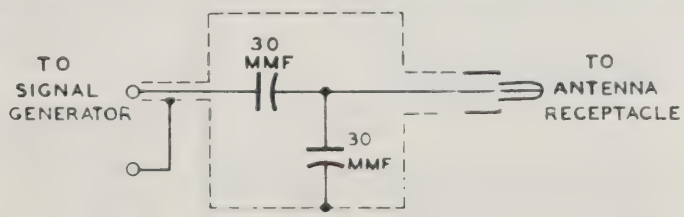


FIG. 1

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Motorola PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det.-AVC-AF Amp.	6AT6	6AT6	7BT	
V5	Audio Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: Motorola PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲10	350	23A485677	AFH3-104		UP15S135C		FP328	TVL-3630	
B	■15	350								
C	20	25							MS-43	
C2	120		21R6715			5R5Q3			2TM-P1	
C3	27		21R114163			PJ2P1		PT401	5GA-Q47	
C4	.1	100	8R472035	P288-1	DF-104	TM5Q5	GP1K-470		5GA-T15	
C5	47		21R115070	SI47	D6-470	5R5T25			5TCC-Q47	
C6	220	500	21R6591	1469-00025		TM5T15	GP2K-151		4TM-S5	
C7	150		21R115089	SI50	D6-151		NP0L-470	PT415	2TM-P1	
C8	47		21R114164	SI47NP0	TCZ-47			PT401	5TCUB-V5	
C9	.05	400	8R14791	P488-05	DF-503	PTE4S5			4TM-S1	
C10	.1	100	8R472035	P288-1	DF-104	PJ2P1		PT411	4TM-S1	
C11	5		21K70720	SI5	TCZ-4.7	5W5V5	GP1K-050	PT411	1FM-335	
C12	.01	200	8R472754	P488-01	D6-103	PTE4S1	GP2-333-103		6TM-D3	
C13	.01	400	8R23690	P488-01	D6-103	PTE4S1	GP2-333-103		2TM-S2	
C14	330	500	21R2744	1468-00035	D6-331		GP2K-331	PT623	6TM-D4	
C15	.003	400	8R490437	P688-003	D6-302	PTE6D3	GP2-333-302	PT412	MB-S3	
C16	.02	100	8R51209	P488-02	DF-203	PJ2S2		PT624	68P20	
C17	.004	400	8K71909	P688-004	D6-402	PTE6D4	GP2-333-402	PT1613		
C18	.03	1000	8K400883	P1088-03		PTE16S3				
C19	.5	100	8R17028	P185-5		MP2P5				
C20	43		21R115069				N750K-430			

CONTROLS

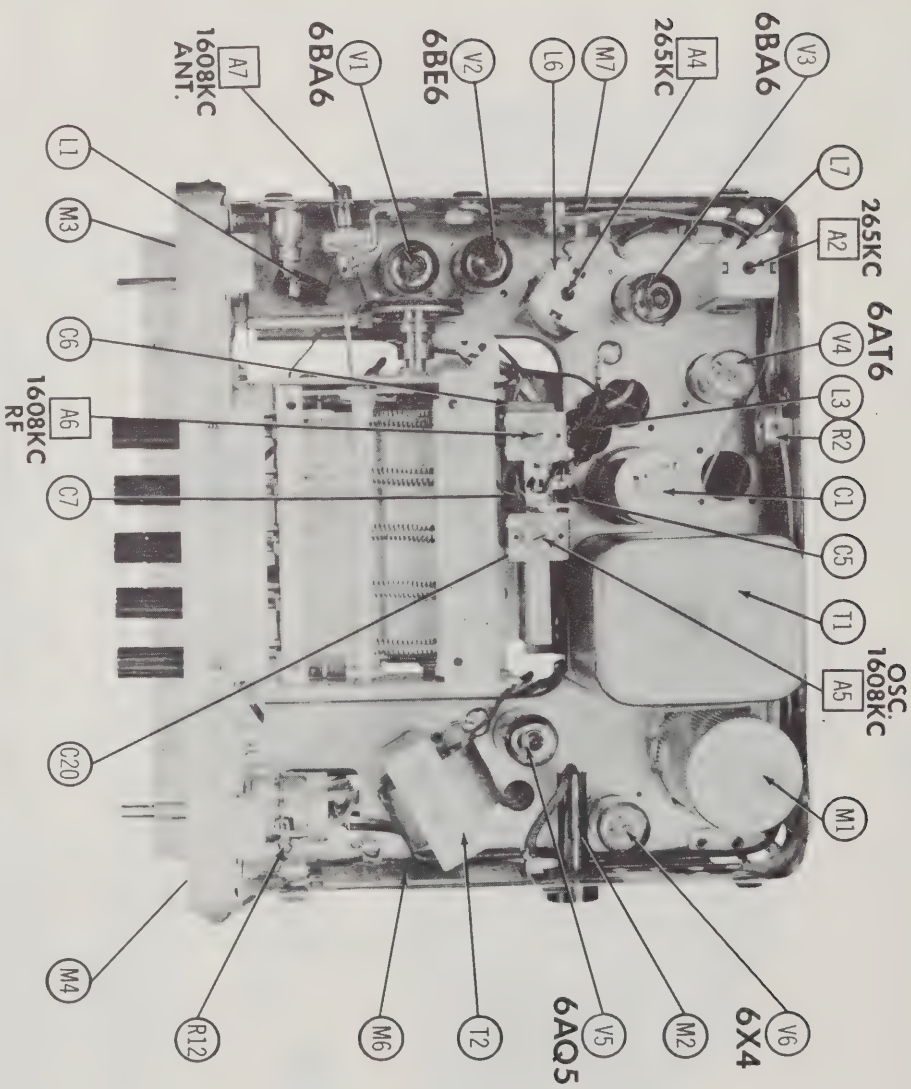
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Motorola PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg		18B511635	QJ-327A *			UF16L	Tone - Panel
B	250KΩ						UR254-T753	Volume - Tapped @ 75KΩ - Rear
C	Switch		Not Req.				US-26	Attach to R1A
R2	150Ω	1	18K512520					Sensitivity - Wire Wound

* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-137 & P1-106 (Panel) B18-130X & R1-118 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Motorola PART No.	IRC PART No.	IDENTIFICATION CODES
R3	470KΩ	½	6R6032	BTS-470K	RF Amp. Grid
R4	10KΩ	1	6R6430	BTA-10K	RF Amp. Plate
R5	220KΩ	½	6R6015	BTS-220K	Converter Grid
R6	47KΩ	½	6R6056	BTS-47K	Osc. Grid
R7	2.2Meg	½	6R3927	BTS-2.2Meg	IF Amp. Grid
R8	22KΩ	2	6R2098	BTB-22K	Screen Dropping
R9	1Meg	½	6R6004	BTS-1Meg	AVC Network
R10	47KΩ	½	6R6056	BTS-47K	Diode RF Filter
R11	2.2Meg	½	6R3927	BTS-2.2Meg	Diode Load
R12	12KΩ	½	6R6394	BTS-12K	Tone Compensation
R13	4.7Meg	½	6R6446	BTS-4.7Meg	RF Amp. Grid
R14	1Meg	½	6R6004	BTS-1Meg	RF Amp. Plate
R15	220Ω	1	6R6389	BTA-220	Output Cathode
R16	39Ω	½	6R2085		Output Cathode
R17	220KΩ	½	6R6015	BTS-220K	Output Grid
R18	2200Ω	1	6R6006	BTA-2200	Filter
R19	.47Ω	½	17K488266		Filament Dropping - Wire Wound
R20	56Ω	½	6R5614		Hash Suppression
R21	56Ω	½	6R5614		Hash Suppression

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

(VIBRATOR) (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	Motorola PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	6.3V ⓖ 3.3ADC	550VCT ⓑ .048ADC			25C511653-B		P-4078		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Motorola PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	6.4KΩ	3.5Ω	565Ω	.94Ω	25B511641-A	A-3878 ①	A-2931 ①	R0-13 ①		① Bend mtg. tabs down, mount on original bracket.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Motorola PART No.	JENSEN PART No.	QUAM PART No.	
SP1	6"x 9"	6 Volt	3.5Ω	50C510124 50C510198 ① 50C501741 ②	ST-811 Mod. P69-T	69A2	① Alternate EM Speaker ② Alternate PM Speaker

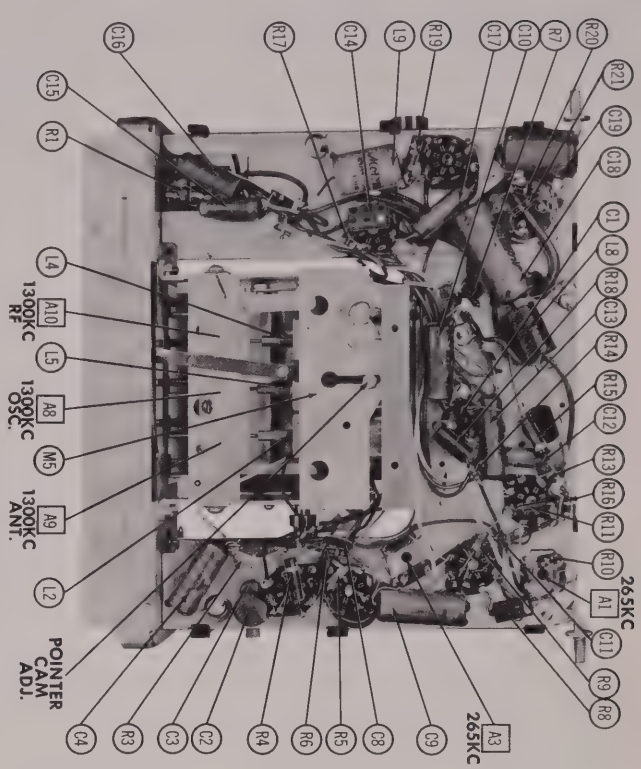
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Motorola PART No.	MERIT PART No.	
L1	Ant. Hash Choke	0Ω		24A692148		
L2	Ant. Coil	1Ω		24B510175		
L3	IF Trap	INF		24K512088		
L4	RF Coil	1Ω, 4Ω		24K510176		
L5	Osc. Coil	1Ω	3.4Ω	24B510112		
L6	Input IF	35Ω	38Ω	24B580193		Alternate Part #24K512407
L7	Output IF	38Ω	40Ω	24K591267		Alternate Part #24K512408
L8	Fil. Choke	.1Ω		24K511681		
L9	Hash Choke	.1Ω		24A472535		

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				Motorola PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	6.3V	115	48B3333	5342	859	5342	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Motorola PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	14A. 32V.	65K12894	9K511573 Complete "A" Lead Assembly	307014	155014	SFE14	HR1

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Motorola PART No.		
M3	Bayonet	6-8	.4	White	78-13466		Type #55
M4	Bayonet	6-8	.4	White	78-13466		Type #55

MISCELLANEOUS

ITEM No.	PART NAME	Motorola PART No.	NOTES
M5	Tuner Unit	51D511638	Tuner Model AT-93
M6	Spark Plate	1A511586	Speaker Lead
M7	Spark Plate	1A591221	"A" Lead
A5	Trimmer	20A510111	Osc. Adj. (470MMF)
A6	Trimmer	20A481526	RF Adj. (70MMF)
A7	Trimmer	20B591269	Ant. Adj. (5-80MMF)
	Dial Scale	34B511569	(Ford FAB-18831-A)
	Knob	36B511457	Tone (Ford FAC-18830-A)
	Knob	1X511756	Tuning (Ford FAA-18824-A)
	Knob	1X511757	Volume (Ford FAC-18817-A)

PUSH BUTTON ADJUSTMENT

Collapse the Antenna

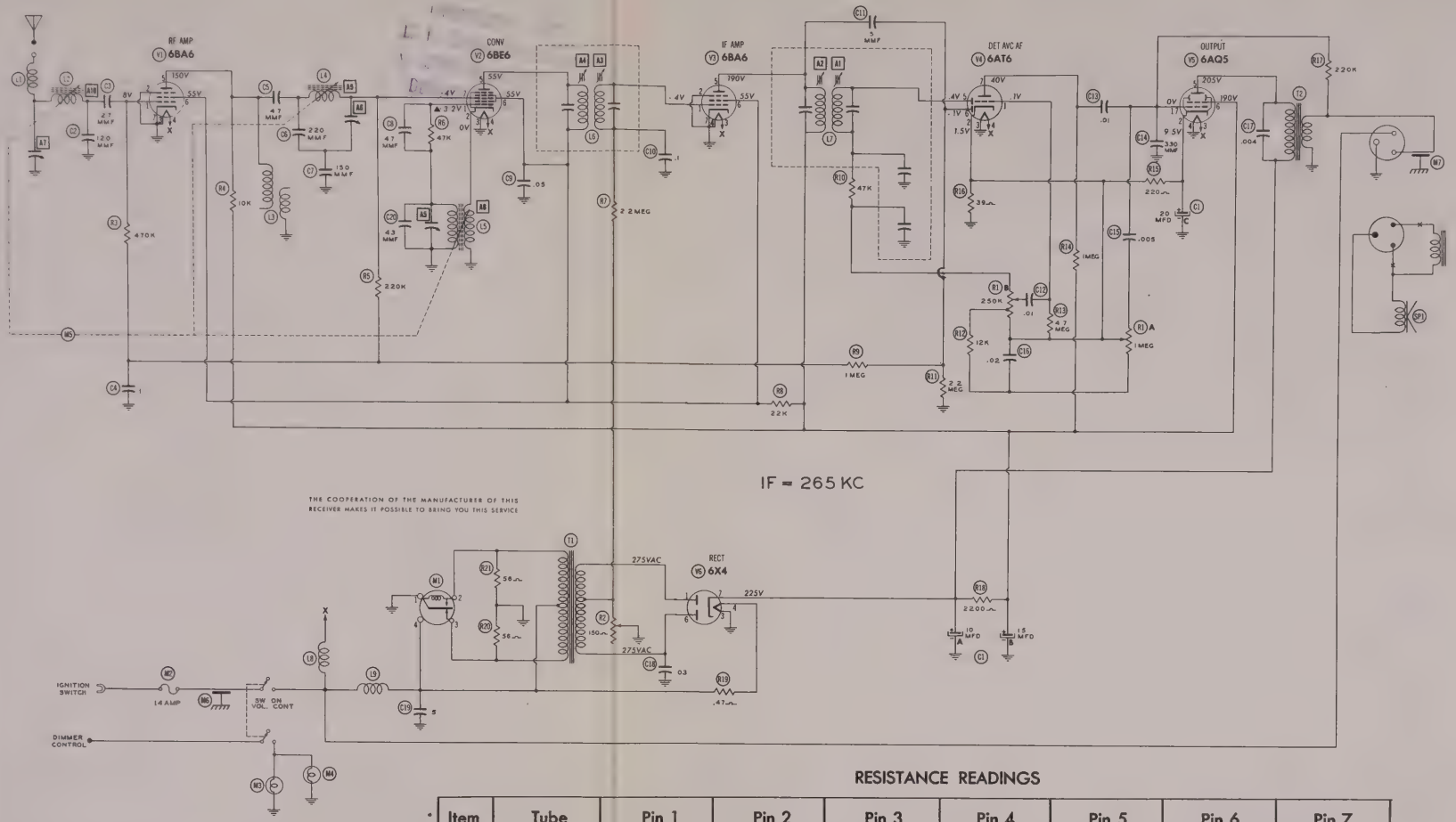
Let receiver warm up for 15 minutes.

Loosen push button by turning with fingers counter clockwise one turn.

Carefully tune in desired station using manual tuning knob.

Press the pushbutton in firmly then release and tighten with the fingers by turning clockwise.

Repeat above procedure for remaining push buttons.



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	3.6Meg	0Ω	0Ω	.1Ω	†12KΩ	†24KΩ	0Ω
V 2	6BE6	47KΩ	1Ω	0Ω	.1Ω	†24KΩ	†24KΩ	3.4Meg
V 3	6BA6	2.2Meg	0Ω	.1Ω	0Ω	†2.2KΩ	†24KΩ	0Ω
V 4	6AT6	4.7Meg	39Ω	0Ω	.1Ω	297KΩ	2.2Meg	†1Meg
V 5	6AQ5	220KΩ	259Ω	.1Ω	0Ω	†565Ω	†2.2KΩ	220KΩ
V 6	6X4	350Ω	.4Ω	0Ω	.7Ω	INF	350Ω	90KΩ

† MEASURED FROM PIN 7 OF V6
▲ TAKEN WITH VACUUM TUBE VOLTMETER

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

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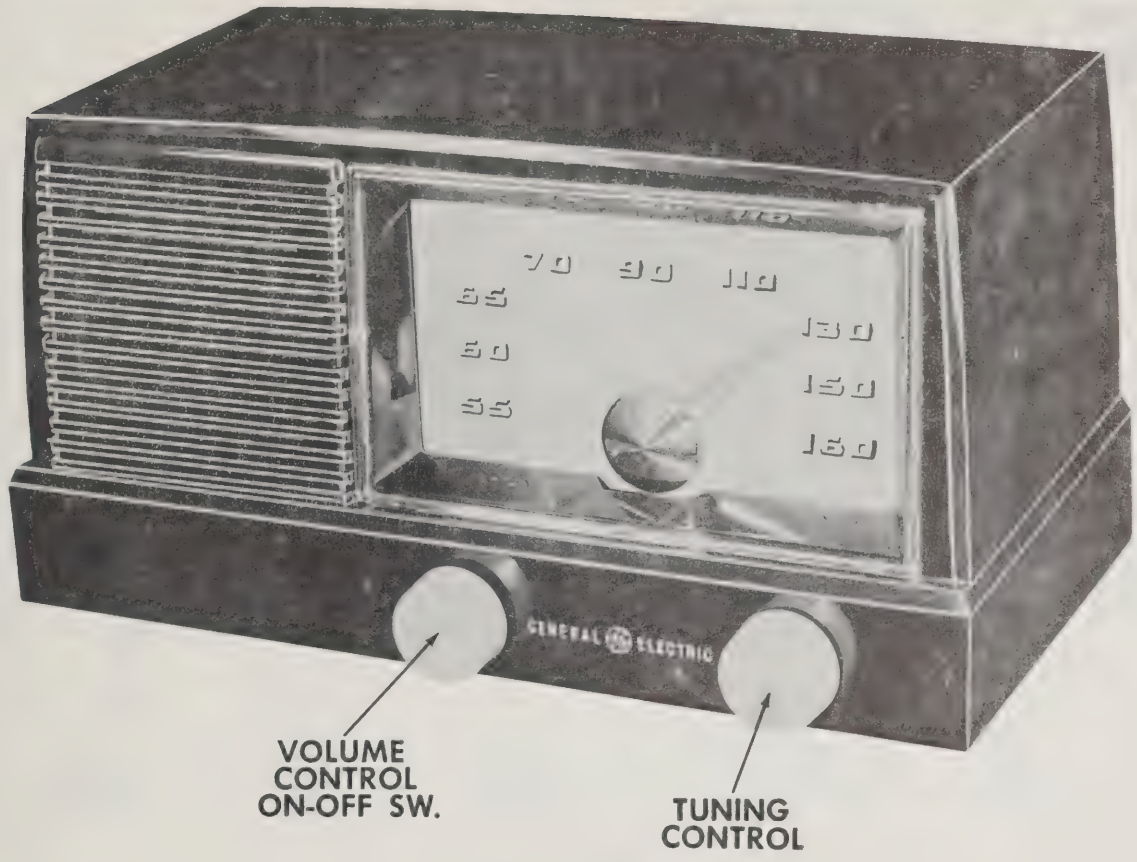
GENERAL ELECTRIC
MODELS 414, 415, 416, 430



GENERAL ELECTRIC
MODELS 414, 415, 416, 430

GENERAL ELECTRIC MODEL 414

TRADE NAME	General Electric Models 414, 415, 416, 430
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, N. Y.
TYPE SET	AC/DC Operated AM Superheterodyne Receiver
TUBES (FIVE)	Types 12BE6 or 12SA7 Conv., 12BA6 IF Amp., 12AV6 or 12SQ7 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .250 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B - . Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B - .	455KC (400\Mod.)	Tuning gang fully open	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500KC	"	"	A6	"

After Alignment replace chassis in cabinet and, with tuning gang fully closed, set pointer parallel with base of dial at low frequency end.

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PARTS LIST AND DESCRIPTIONS

GENERAL ELECTRIC
MODEL 414

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		General Electric PART No.	STANDARD REPLACEMENT		
V1A	Converter	12BE6	12BE6	7CH	
B	Converter	12SA7	12SA7	8R	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3A	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
B	Det.-AVC-AF Amp.	12SQ7	12SQ7	8Q	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Gen. Electric PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	50	150	RCE-127	PRS150/50-50		BRD5515A		TCD-49	TVA-2415	Red
B	50	150								Yellow
C2	.05	400	UCC-045	P488-05	DF-503	PTE4S5			4TM-S5	
C3	47	500	UCU-020	1469-00005	D6-470	5R5Q5	GP1K-470	MCB225	MS-45	
C4A	400			1468-0004	D6-401	5W5T4	GP2K-401	MC243		Note #1
B	2000		RCW-3048	BPD-002	DD-202	TM5D2	801-002	DC-522	34C3	
C	220			SI220	D6-221	5W5T25	GP2K-221	UC-5322		
D	5000			BPD-005	DD-502	TM5D5	811-005	DC-525		
C5	.02	400	UCC-041	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C6	.05	600	UCC-045	P688-05		PTE6S5		PT615	6TM-S5	
C7	.05	400	UCC-045	P488-05		PTE4S5		PT415	4TM-S5	

Note #1. Some Models use 220MMF in this application (Part No.RCW-3013)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	Gen. Electric PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	RRC-172	Q13-133	AG-60-Z	BSK-60-S	U-48	Volume Control
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

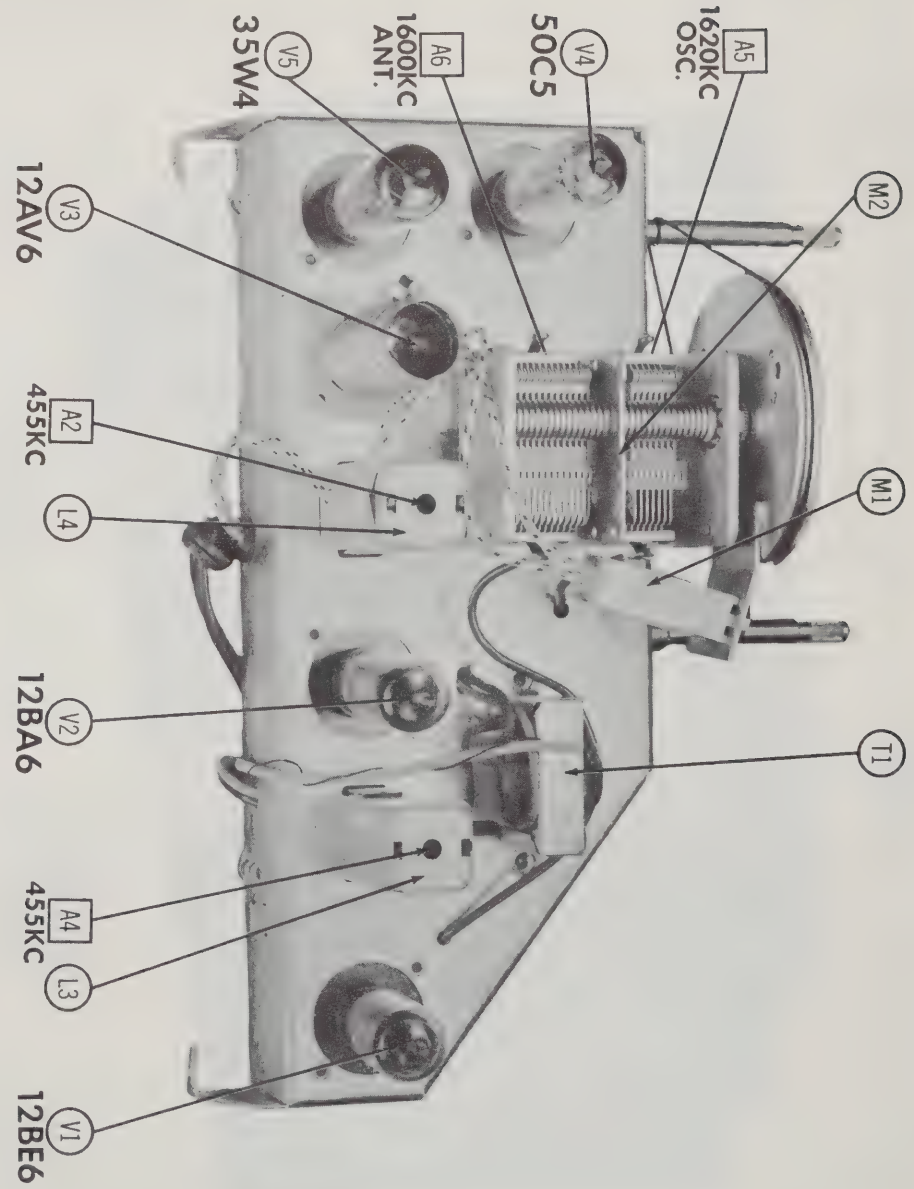
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Gen. Electric PART No.	IRC PART No.	
R2	22KΩ	½	URD-081	BTS-22K	Osc. Grid
R3	2.2Meg	½	URD-129	BTS-2.2Meg	AVC Network
R4	68Ω	½	URD-021		IF Amp. Cathode
R5	4.7Meg	½	URD-137	BTS-4.7Meg	AF Amp. Grid
R6	470KΩ	½	URD-113	BTS-470K	AF Amp. Plate
R7	1Meg	½	URD-121	BTS-1Meg	Output Grid
R8	150Ω	½	URD-029	BTS-150	Output Cathode
R9	1500Ω	2	URF-053	BTB-1500	Filter
R10	22Ω	½	URD-009		Surge Limiter
R11	470KΩ	½	URD-113	BTS-470K	Line Isolation - See Note

Note. Used only in early production Models

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Gen. Electric PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.6KΩ	3.5Ω	220Ω	.5Ω	K-69J106	A-3332	A-3025	RO-2 ①	S-1X	① Drill new mtg. holes

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Gen. Electric PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.5Ω	K-69J166	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

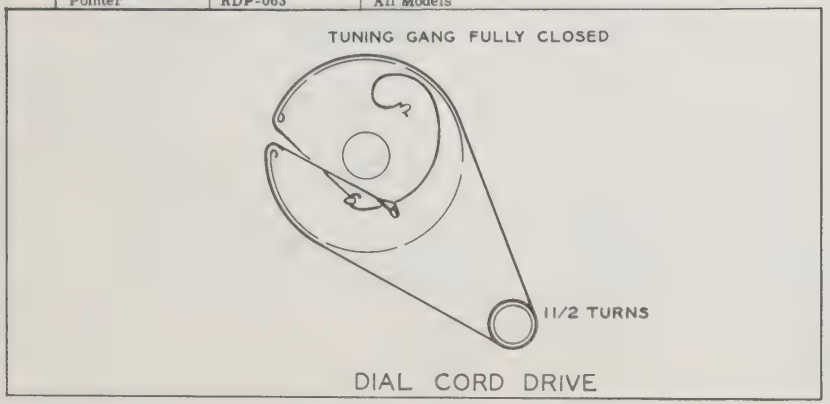
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Gen. Electric PART No.	MERIT PART No.	
L1	Loop Ant.	3.2Ω		RAB-172		
L2	Osc. Coil	.6Ω	6.7Ω	RLC-117		
L3	Input IF	17Ω	17Ω	RTL-135	BC-352	
L4	Output IF	17Ω	17Ω	RTL-136	BC-353	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Gen. Electric PART No.		
M1	Bayonet	6-8	.15	Brown			Type No. 47

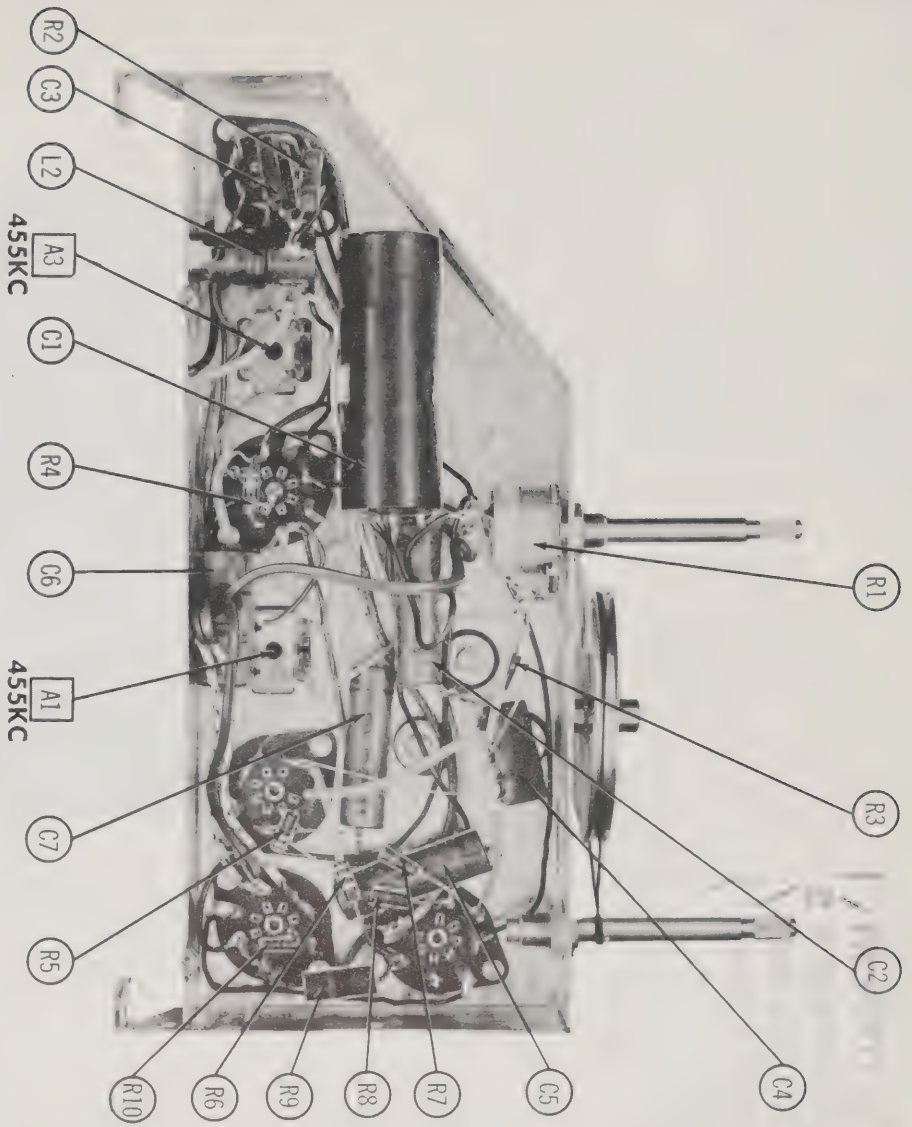
MISCELLANEOUS

ITEM No.	PART NAME	Gen. Electric PART No.	NOTES
M2	2 Gang Var. Cap.	RCT-058	(21-454MMF, 21-182MMF)
	Cabinet	RAU-350	Model 414 - Ivory
	Cabinet	RAU-351	Model 415 - Maroon
	Cabinet	RAU-352	Model 416 - Mahogony
	Cabinet	RAV-177	Model 430 - Mahogony
	Knob	RDK-260	Models 414, 415, 416
	Knob	RDK-003	Model 430
	Dial Scale	RDS-109	All Models
	Pointer	RDP-063	All Models

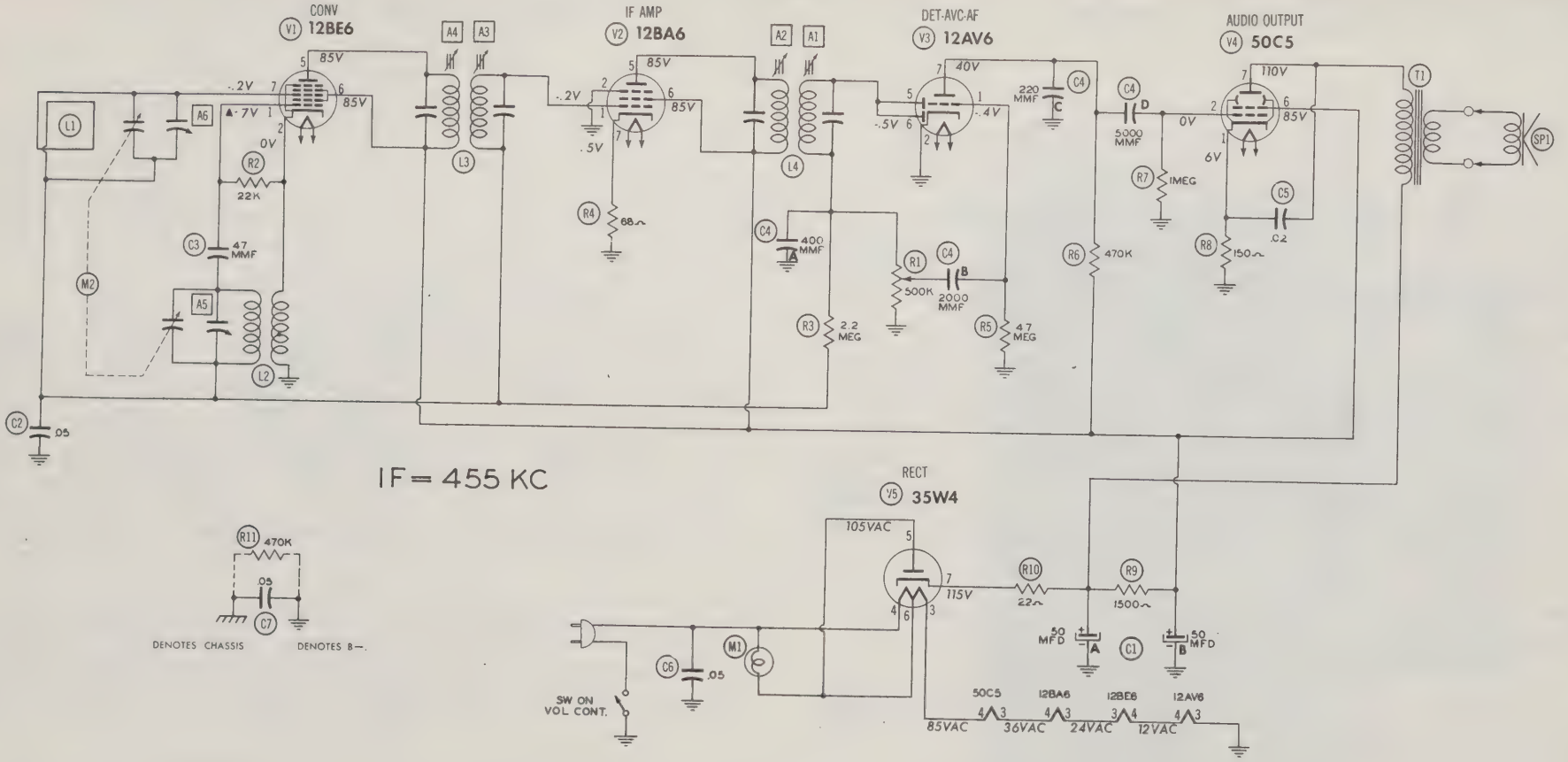


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



GENERAL ELECTRIC MODEL 414



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.6Ω	24Ω	12Ω	†1.5KΩ	†1.5KΩ	2.7Meg
V 2	12BA6	2.7Meg	0Ω	24Ω	36Ω	†1.5KΩ	†1.5KΩ	68Ω
V 3	12AV6	4.7Meg	0Ω	0Ω	12Ω	500KΩ	500KΩ	†470KΩ
V 4	50C5	150Ω	1Meg	36Ω	86Ω	1Meg	†1.5KΩ	†242Ω
V 5	35W4	†22Ω	†22Ω	86Ω	121Ω	105Ω	105Ω	70KΩ

† MEASURED FROM PIN 7 OF V5
▲ TAKEN WITH VACUUM TUBE VOLTMETER

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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175-11

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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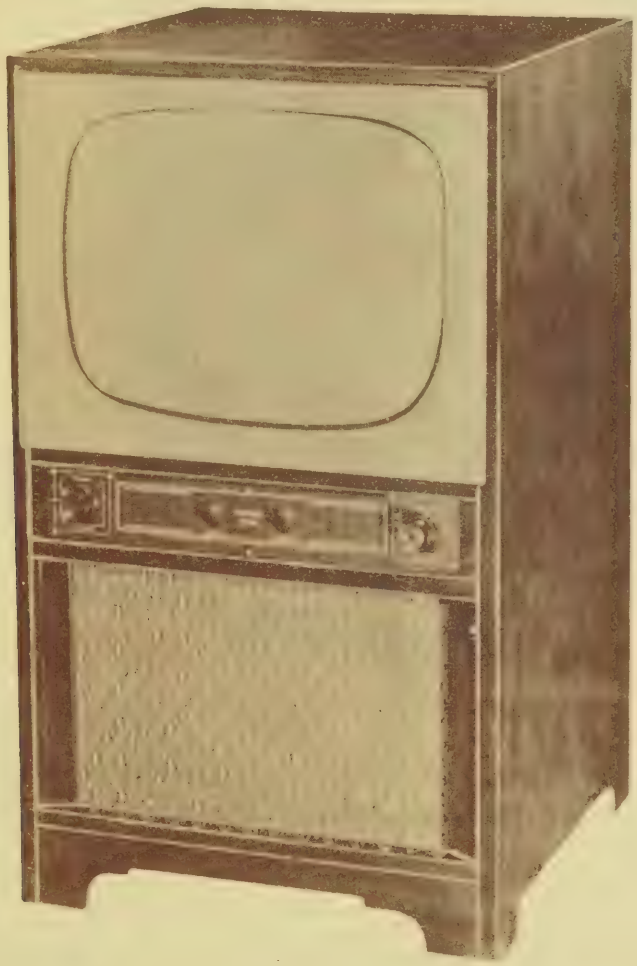

MODEL 20PC

MIRRORTONE
MODEL 20PC

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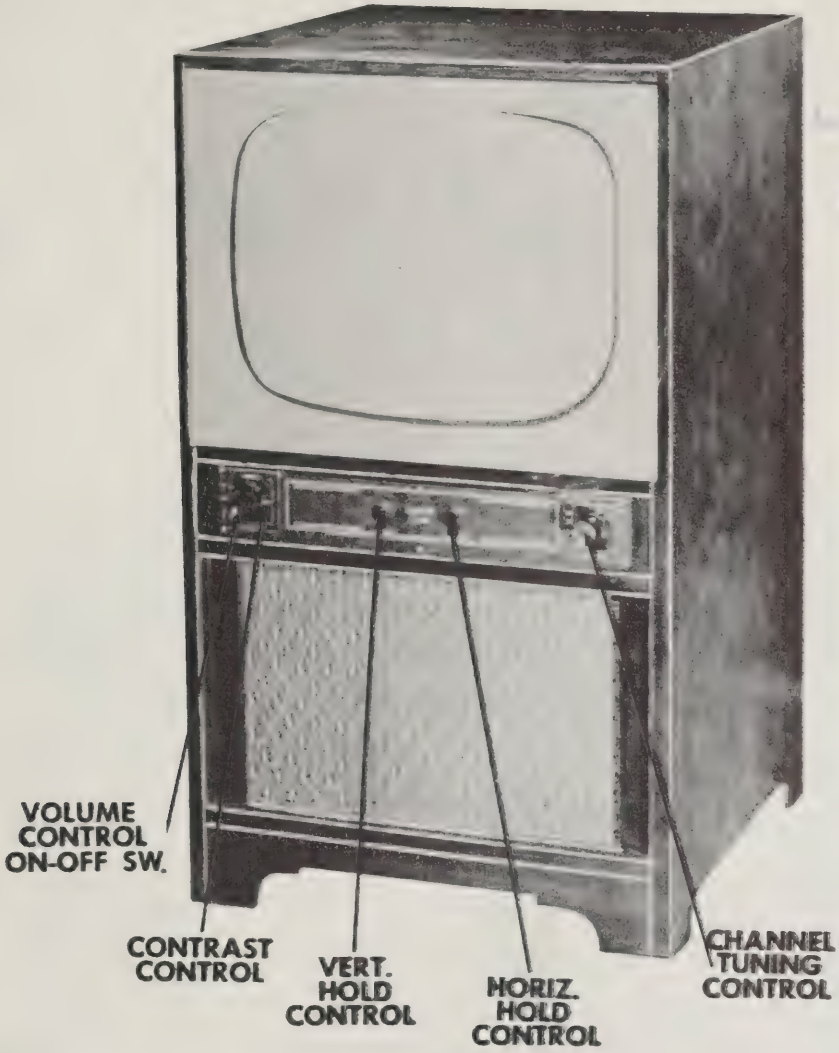
MIRRORTONE MODEL 20PC



MIRRORTONE MODEL 20PC

TRADE NAME	Mirrortone Model 20PC		
TYPE SET	Television Receiver		
TUBES	Nineteen		
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING	1.68 amp. @ 117 volts AC
TUNING RANGE	Channels 2 thru 13		

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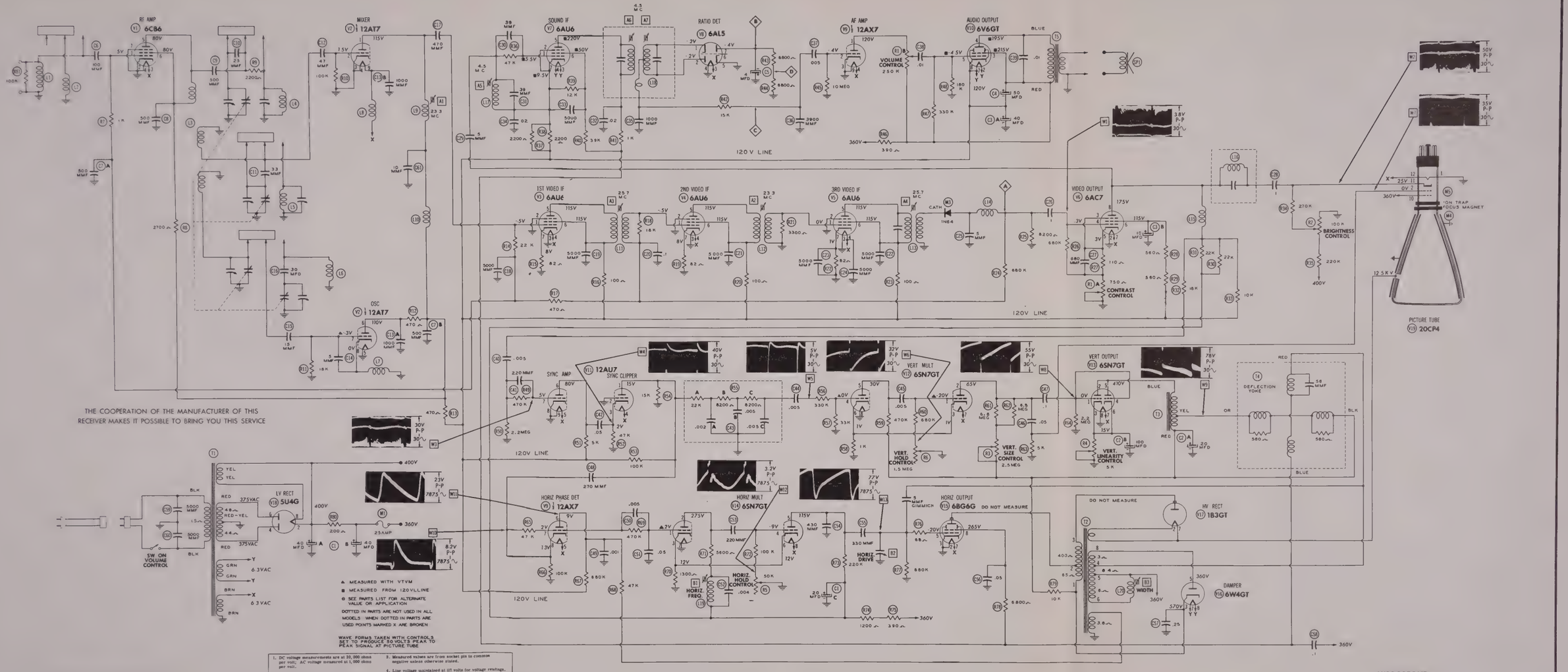
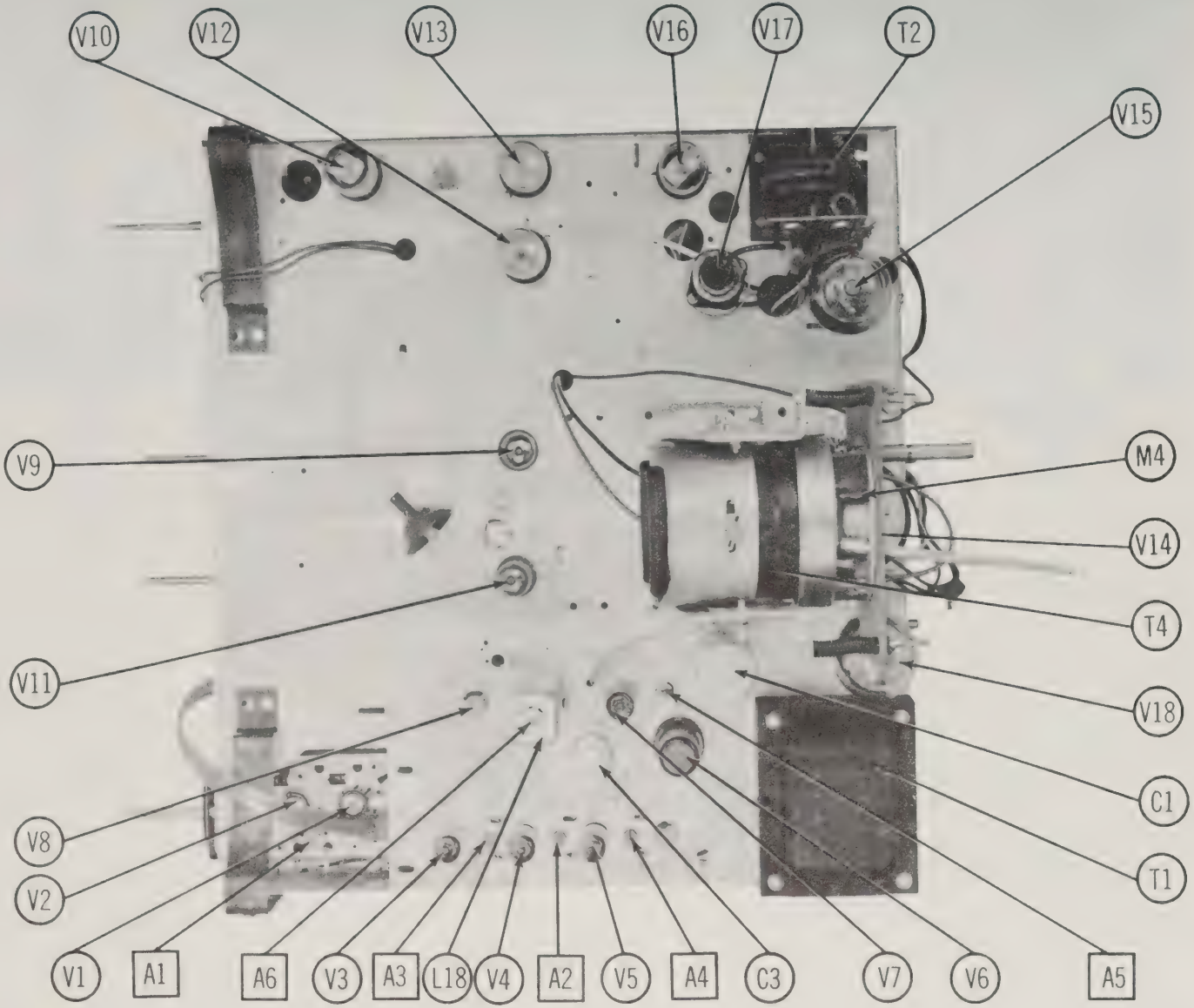
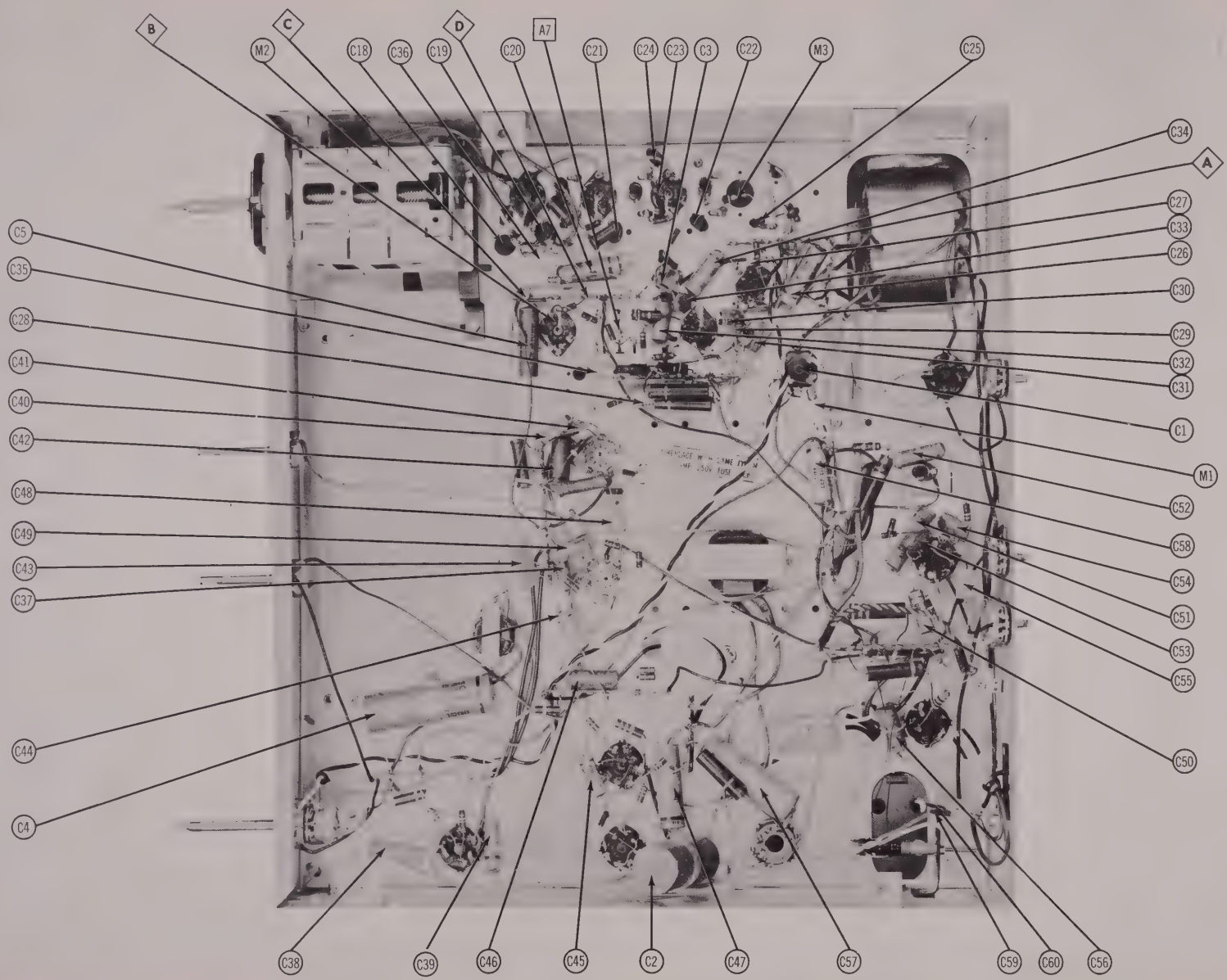


MIRRORTONE MODEL 20PC

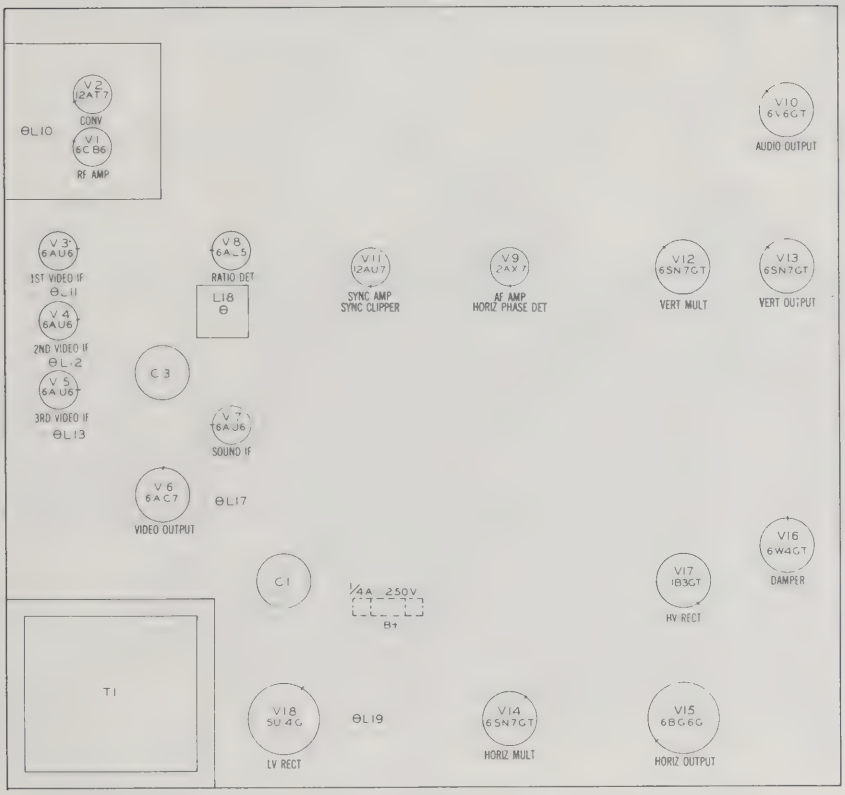


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW- CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound - V18

LOSS OF PICTURE OR SOUND
No pic, No sound, Has raster - V2, V3, V4, V5, V6, V10
No pic, No sound, Has snow - V1, V2, V3
No pic, Has sound, Has raster - V6, V19
Has pic, No sound - V7, V8, V9, V10

SYNC FAILURE
No Vert. sync - V11, V12, V13
No Hor. sync - V11, V9, V14
No Vert. or Hor. sync - V11

SWEEP FAILURE
No raster, Has sound - V14, V15, V16, V17, V19, Fuse (M1)
No Vertical deflection - V12, V13
Poor Vert. Linearity or foldover - V12, V13
Poor Horiz. linearity or foldover - V14, V15, V16
Narrow picture - V14, V15, V16, V18
Vert. off freq. - V12
Horiz. off freq. - V9, V14

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the ungrounded side of C20. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.001MFD	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	23.3MC (unmod.)	Any not used locally.	DC probe to Point (A). Common to chassis.	A1, A2	Adjust for maximum deflection.
2	"	"	25.7MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

In order to prevent an erroneous indication of the response curve the fine tuning control should be turned to a point of non-interference. This will be a point where a slight rotation of the control produces no change in the shape of the response curve.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	.001MFD	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	24MC (10MC swp.)	21.6MC 26.1MC	Tune to point of non-interference.	Vert. amp. to Point (A). Low side to chassis.		Check for response curve similar to fig. 1 with video marker at 50% and sound marker at 5% of response. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.001MFD	High side to Point (A). Low side to chassis.	4.5MC (unmod.)	Any not used locally	DC probe to Point (B). common to chassis.	A5, A6	Adjust for maximum deflection.
5.	"	"	"	"	DC probe to Point (C). Common to Point (D).	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.001MFD	High side to Point (A). Low side to chassis.	4.5MC 450KC swp.	4.5MC	Any not used locally.	Vert. amp. to Point (B). Low side to chassis.	A5, A6	Disconnect stabilizer capacitor C5. Adjust for maximum amplitude and symmetry as per fig. 2.
5.	"	"	"	"	"	Vert. amp. to Point (C). Low side to chassis.	A7	Reconnect capacitor C5. Adjust so 4.5MC appears at center of crossover lines as in fig. 3. SLIGHTLY retouch A6 for maximum amplitude and straightness of crossover lines.

The tuner has been properly aligned at the factory and is very stable. Alignment of tuner should not be required in the field.

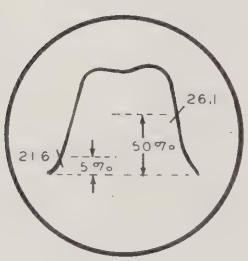


FIG. 1

FIG. 2

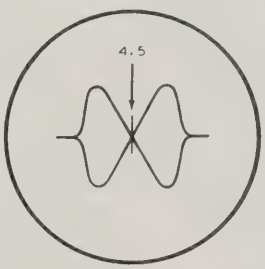
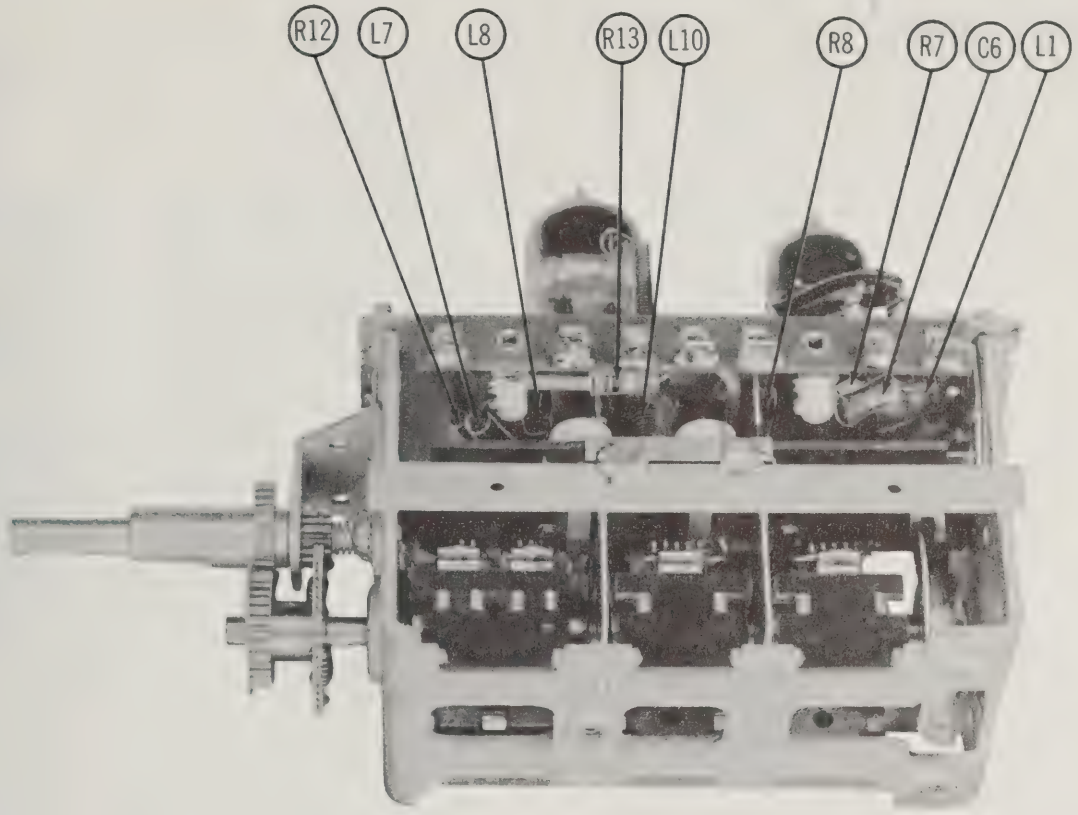
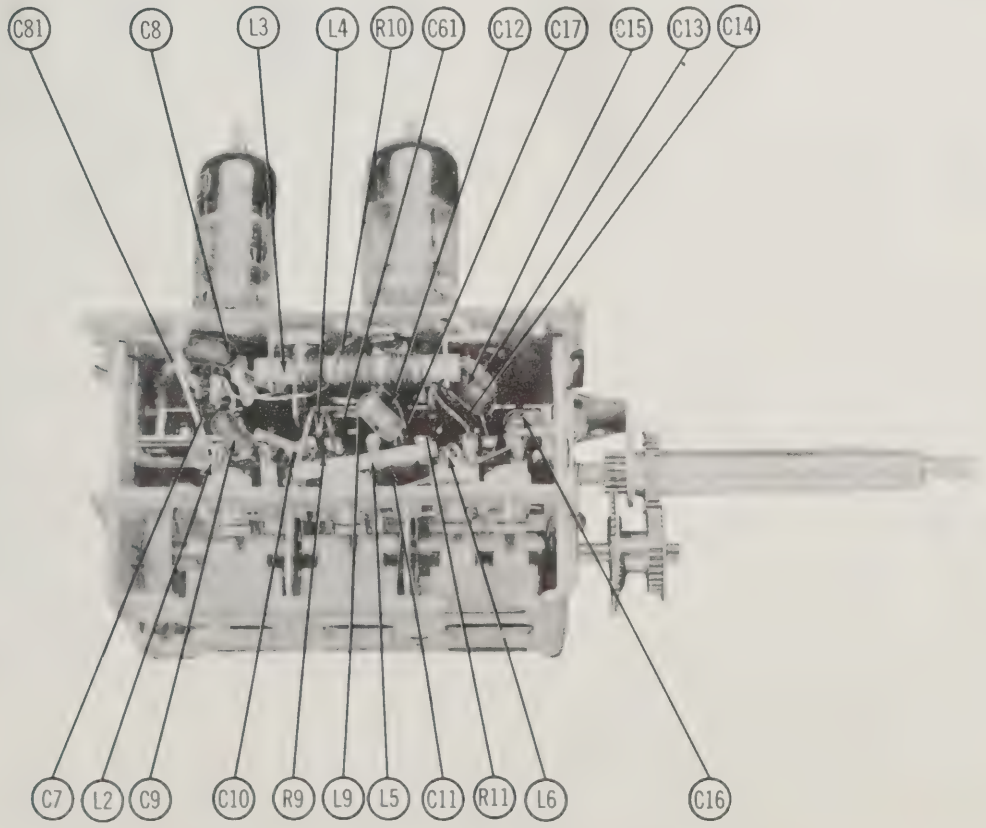


FIG. 3



RF TUNER-RIGHT SIDE



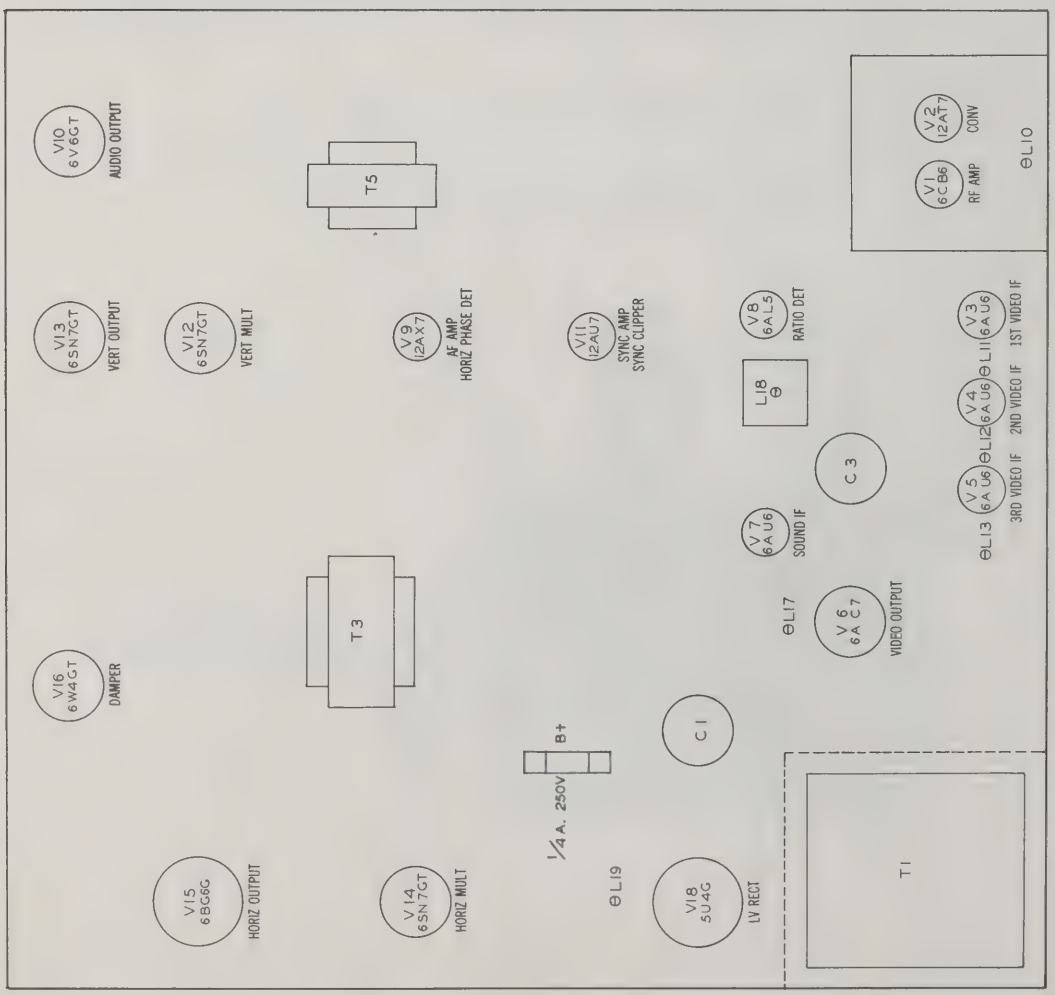
RF TUNER-LEFT SIDE

RESISTANCE MEASUREMENTS

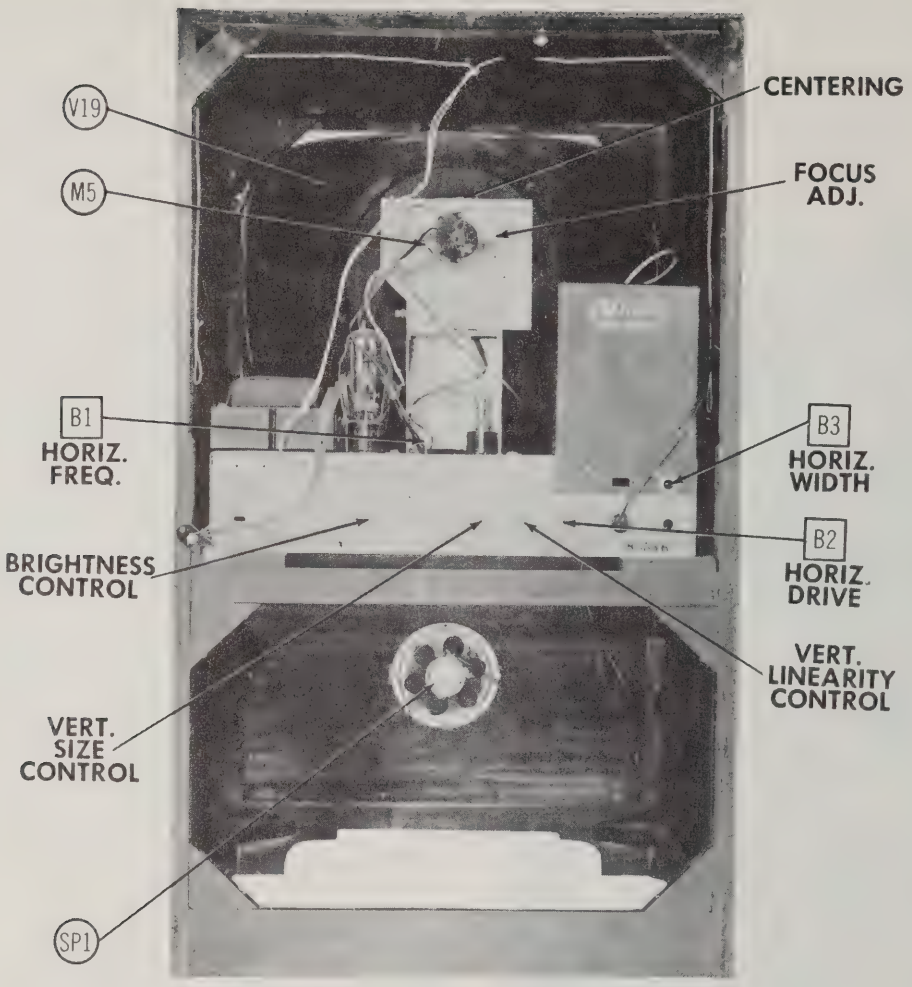
VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	690KΩ	0Ω	.2Ω	0Ω	■3.1KΩ	■3.1KΩ	0Ω		
V 2	12AT7	■470Ω	100KΩ	0Ω	0Ω	0Ω	■940Ω	18KΩ	.2Ω	.2Ω
V 3	6AU6	710KΩ	0Ω	0Ω	.1Ω	■100Ω	■100Ω	82Ω		
V 4	6AU6	680KΩ	0Ω	0Ω	.1Ω	■100Ω	■100Ω	82Ω		
V 5	6AU6	.1Ω	0Ω	0Ω	.1Ω	■100Ω	■100Ω	82Ω		
V 6	6AC7	0Ω	0Ω	225Ω	680KΩ	225Ω	■1.3KΩ	.1Ω	†9KΩ	
V 7	6AU6	■48KΩ	■1.1KΩ	■0Ω	■.1Ω	†1.3KΩ	■10KΩ	■1.1KΩ		
V 8	6AL5	INF	INF	.1Ω	0Ω	0Ω	INF	13KΩ		
V 9	12AX7	†250KΩ	10Meg	0Ω	.1Ω	.1Ω	47KΩ	150KΩ	100KΩ	0Ω
V 10	6V6GT	INF	■.1Ω	†925Ω	†590Ω	130KΩ	INF	■0Ω	40KΩ	
V 11	12AU7	15KΩ	0Ω	47KΩ	.1Ω	.1Ω	■5KΩ	2.7Meg	0Ω	0Ω
V 12	6SN7GT	2Meg	#4Meg	1KΩ	33KΩ	#480KΩ	1KΩ	.1Ω	0Ω	
V 13	6SN7GT	.2.2Meg	#11KΩ	1KΩ	2.2Meg	#11KΩ	1KΩ	.1Ω	0Ω	
V 14	6SN7GT	615KΩ	†7.4KΩ	1.3KΩ	120KΩ	†220KΩ	1.3KΩ	0Ω	.1Ω	
V 15	6BG6G	INF	0Ω	0Ω	INF	680KΩ	INF	.1Ω	†7KΩ	TOP CAP #65Ω
V 16	6W4GT	INF	INF	200KΩ	INF	†213Ω	INF	■.1Ω	■0Ω	
V 17	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								TOP CAP #465Ω
V 18	5U4G	INF	50KΩ	INF	44Ω	INF	48Ω	INF	50KΩ	
V 19	20CP4	0Ω	5KΩ	PIN 10 †200Ω	PIN 11 310KΩ	PIN 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 2 OF V18
# MEASURED FROM PIN 3 OF V16
■ MEASURED FROM 120VDC LINE



TUBE PLACEMENT CHART



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control in the center of its range and adjust the horizontal frequency slug, (B1) for horizontal synchronization.

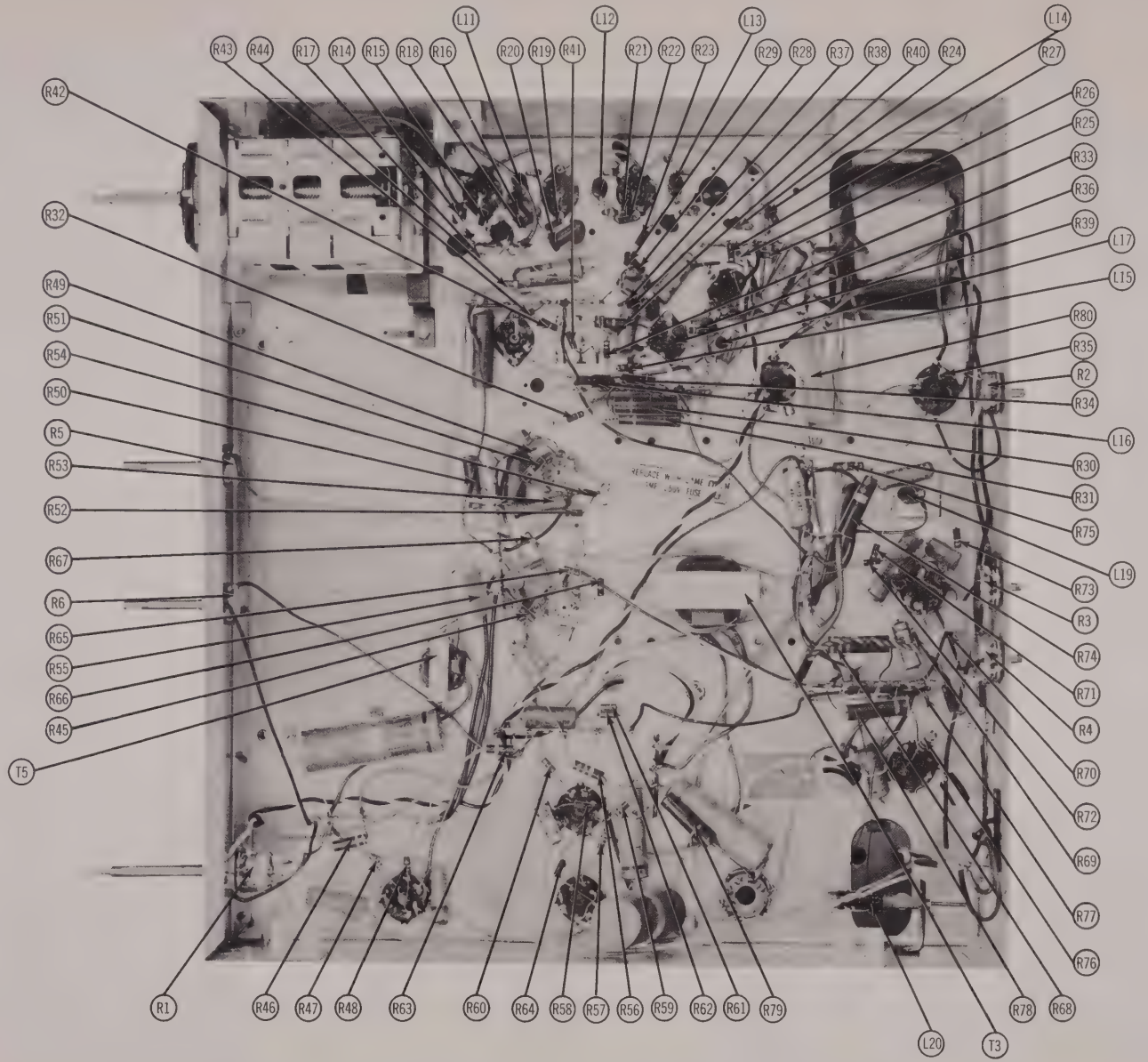
Adjust the horizontal drive trimmer, (B2) counter-clockwise to the point where a vertical white line appears in the picture, then clockwise until the line just disappears.

Adjust the width slug(B3)for a picture slightly wider than enough to fill the picture mask.

DISASSEMBLY INSTRUCTIONS

1. Remove 6 push on type control knobs from front panel.
2. Remove 7 wood screws. Remove rear cover.
3. Disconnect built-in antenna and speaker.
4. Remove 2 wood screws. Remove antenna bracket.
5. Remove 2 nuts holding speaker. Remove speaker.
6. Remove 1 wood screw. Remove CRT brace from top of cabinet.
7. Remove 4 chassis bolts. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MIRRORTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6CB6	6CB6	7CM	
V2	Converter	12AT7	12AT7	9A	
V3	1st. Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd. Video IF Amp.	6AU6	6AU6	7BK	
V6	Video Output	6AC7	6AC7	8M	
V7	Sound IF Amp.	6AU6	6AU6	7BK	
V8	Ratio Detector	6AL5	6AL5	6BT	
V9	AF Amplifier-Horiz. Phase Det.	12AX7	12AX7	9A	
V10	Audio Output	6V6GT	6V6GT	7AC	
V11	Sync. Amplifier-Sync. Clipper	12AU7	12AU7	9A	
V12	Vert. Mult.	6SN7GT	6SN7GT	8BD	
V13	Vert. Output	6SN7GT	6SN7GT	8BD	
V14	Horiz. Mult	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6BG6G	6BG6G	5BT	
V16	Damper	6W4GT	6W4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: MIRRORTONE PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V19	20CP4	20CP4	12D	① Circuit changes necessary
		20CP4A ①	12D	② 3/8" longer
		20DP4 ②	12D	
		20DP4A ① ②	12D	
		20HP4 ① ②	12C	
		20HP4A ① ②	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Mirrortone PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	40	450		AFH3-44		UPT44445		FP447	TVL-3787	
B	40	450								
C	20	450								
C2A	20	450		PRS450/20		BR2045A	TC75	TVA-1709		Red
B	100	25		PRS25/100		BRH25IA	TC2501	TVA-1207		Yellow
C3A	40	350		AFH3-28		UP22135	FP146	TVL-1725		
B	40	250					TC52	TVA-1504		
C4	50	350		PRS450/40		BR4035	TC78	TVA-1713		
C5	4	50		PRS150/4		BR550	TC30	TVA-1303		
C6	100			SI00	D6-101	TMST1	GP1K-101	UC-531	5GA-T1	
C7A	500			SI500	D6-501	TMST5	GP2K-501	UC-535	5GA-T5	
B	500			SI500	D6-501	TMST5	GP2K-501	UC-535	5GA-T5	
C8	500			SI500	D6-501	TMST5	GP2K-501	UC-535	5GA-T5	
C9	500			SI500	D6-501	TMST5	GP2K-501	UC-535	5GA-T5	
C10	25			SI25	D6-250		GP1K-250	UC-5425	5GA-G25	
C11	33				TCN-33		N750K-330	UC-5433	5TCU-Q33	
C12	47			SI47N750	TCN-47		N750K-470	NT-5447	5TCU-Q47	
C13A	1000			BPD-2X001	DD-2-102	TMSDD1	812-001	DCD-521	5HK-2D1	
B	1000									
C14	5			SI5N750			N750K- 050	NT-555		
C15	15				TCN-15		N750K-150		5TCU-Q15	
C16	30				TCN-30		N750K-300			
C17	470			SI470	D6-471		GP2K-471	UC-5347	5GA-T47	
C18	5000			BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C19	5000			BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C20	.1	200		P288-1	DF-104	PT2P1		PT401	2TM-P1	
C21	5000			BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C22	5000			BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C23	5000			BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C24	5000			BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C25	5			SI5	TCZ-4.7	5W5V5	GP1K-050	ZT-555	MS-55	
C26	.1	200		P288-1	DF-104	PT2P1		PT401	2TM-P1	
C27	680			SI680	D6-681	2R5T7	GP2K-681	UC-5368	5GA-T68	
C28	.1	400		P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C29	5			SI5	TCZ-4.7	5W5V5	GP1K-050	ZT-555	MS-55	
C30	39	500		1468-00004	D6-390	5W5Q4	GP1K-390	MC223	1FM-44	
C31	39	500		1469-00004		5R5Q4		MCB223	MS-44	
C32	.02	600		P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C33	5000			BPD-005	DD-502	TMSD5	811-005	DC-525	5HK-D5	
C34	.02	400		P488-02	DF-203	PTE4S2		PT412	4TM- S2	
C35	1000			SI000	D6-102	TMSD1	GP2L-102	UC-521	5HK-D1	
C36	3900			1464-004		LDR5D4		MC463		
C37	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C38	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C39	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C40	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C41	220	500		1468-00025	D6-221	5W5T25	GP2K-221	MC240	1FM-325	
C42	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C43A	.002			P688-002		PTE6D2	GP2-333-202	PT622		
B	.005			P688-005	◆PC-100	PTE6D5	GP2-333-502	PT625	◆101C1	
C	.005			P688-005		PTE6D5	GP2-333-502	PT625		
C44	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C45	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C46	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C47	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C48	270	500		1469-0003	D6-270	5R5T3	GP2K-271	MCB241	MS-33	
C49	.001	400		P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C50	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C51	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C52	.004	400		P688-004	D6-402	PTE6D4	GP2-333-402	PT624	6TM-D4	
C53	220	500		1469-00025		5R5T25		MCB240		

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Mirrortone PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C54	430	500		1469-00035						
C55	330	500		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C56	.05	600		684-25		PTE6P25		PT6025	6TM-P25	
C57	.25	600		P288-1	DF-104	PT2P1		PT401	2TM-P1	
C58	.1	200		BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C59	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C60	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	

◆ Items C43A, C43B, C43C, R55A, R55B, R55C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Mirrortone PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	750Ω	½	VC-12127b	QJ-246*	RTV-297	SBBT-682S	WF13-T251	Contrast-Tapped ② 500Ω-Panel
B	250KΩ	½					UR254A	Volume-Rear
C	Switch						US-26	Attach to R1B
R2A	100KΩ	½	VCA-12135	Q11-128	AG-49-S	AB-40	SU-41	Brightness
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R2A
R3A	2.5Meg	½	VC-12121C	Q11-239	AG-84-S	AB-83	SU-565	Vert. Size
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R3A
R4A	5000Ω	½	VC-12120B	Q11-114	AG-19-S	AB-10	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R4A
R5A	50KΩ	½	VC-12131C	Q11-123	AG-44-S	AB-35	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R5A
R6A	1.5Meg	½	VC-12132C	Q11-138	AG-83-S	AB-75	U-155	Vert. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R6A

*CONCENTRIKIT EQUIVALENT -KIT K-2, BASE ELEMENTS& SHAFTS B17-105X & P1-210 (Panel), B13-130 & R2-226 (Rear) & Switch 76-1.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Mirrortone PART No.	IRC PART No.	IDENTIFICATION CODES (ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED)
R7	100Ω			BTS-1000	RF Amp. Grid
R8	2700Ω			BTS-2700	RF Amp. Decoupling
R9	2200Ω				Parasitic Suppressor
R10	100KΩ				Mixer Grid
R11	18KΩ				Osc. Grid
R12	470Ω			BTS-470	Osc. Plate
R13	470Ω			BTS-470	Decoupling
R14	22KΩ				1st. Video IF Amp. Grid
R15	82Ω	20%		BTS-82	1st. Video IF Amp. Cathode
R16	100Ω			BTS-100	1st. Video IF Amp. Decoupling
R17	470Ω			BTS-470	AGC Network
R18	18KΩ				2nd. Video IF Coil Shunt
R19	82Ω	20%		BTS-82	2nd. Video IF Amp. Cathode
R20	100Ω			BTS-100	2nd. Video IF Amp. Decoupling
R21	3300Ω			BTS-3300	3rd. Video IF Coil Shunt
R22	82Ω	20%		BTS-82	3rd. Video IF Amp. Cathode
R23	100Ω	20%		BTS-100	3rd. Video IF Amp. Decoupling
R24	680KΩ	20%		BTS-680K	AGC Network
R25	8200Ω			BTS-8200	Video Det. Load
R26	680KΩ	20Ω		BTS-680K	Video Output Grid
R27	110Ω	5%		BTS-110 5%	Video Output Cathode
R28	560Ω	20%		BTS-560	Video Output Screen
R29	560Ω	20%		BTS-560	Video Output Screen
R30	22KΩ	20%		BTB-22K	Video Output Plate
R31	22KΩ	20%		BTB-22K	Video Output Plate
R32	18KΩ			BTS-18K	Isolation
R33	10KΩ			BTS-10K	Voltage Divider
R34	270KΩ	20%		BTA-270K	Picture Tube Cathode
R35	220KΩ	20%		BTS-220K	Voltage Divider
R36	47KΩ				Sound IF Amp. Grid
R37	2200Ω			BTS-2200	Sound IF Amp. Cathode
R38	2200Ω			BTS-2200	Sound IF Amp. Cathode
R39	12KΩ	20%		BTS-12K	Voltage Divider
R40	39KΩ	5%			Sound IF Amp. Screen
R41	1000Ω	20%		BTS-1000	Sound IF Amp. Plate Decoupling
R42	15KΩ	20%		BTS-15K	De-emphasis
R43	6800Ω			BTS-6800	Ratio Det. Diode Load
R44	6800Ω			BTS-6800	Ratio Det. Diode Load
R45	10Meg	20%		BTS-10Meg	AF Amp. Grid
R46	390Ω	20%		BTA-390	Decoupling
R47	330KΩ	5%		BTS-330K 5%	Voltage Divider
R48	180KΩ	5%		BTS-180K 5%	Output Grid
R49	470KΩ	20%		BTS-470K	Isolation
R50	2.2Meg	20%		BTS-2.2Meg	Sync Amp. Grid
R51	5000Ω				Sync Amp. Plate
R52	47KΩ	20%		BTS-47K	Sync Clipper Cathode
R53	100KΩ			BTS-100K	Sync Clipper Plate
R54	15KΩ	20%		BTS-15K	Voltage Divider
R55A	22KΩ			BTS-22K	Integrator Network
B	8200Ω		◆	BTS-8200	Integrator Network
C	8200Ω			BTS-8200	Integrator Network
R56	330KΩ	20%		BTA-330K	Integrator Network
R57	33KΩ	20%		BTS-33K	Vert. MV Grid
R58	1000Ω	20%		BTS-1000	Vert. MV Cathode
R59	470KΩ	20%		BTS-470K	Vert. MV Plate
R60	680KΩ	20%		BTS-680K	Vert. MV Grid
R61	6.8 Meg	20%		BTS-6.8Meg	Vert. MV Plate
R62	6.8Meg	20%		BTS-6.8Meg	Vert. MV Plate
R63	5000Ω				Vert. Peaking
R64	2.2Meg	20%		BTS-2.2Meg	Vert. Output Grid
R65	47KΩ	20%		BTS-47K	Horiz. Phase Det. Grid
R66	100KΩ	20%		BTS-100K	Horiz. Phase Det. Cathode
R67	680KΩ	20%		BTS-680K	Horiz. Phase Det. Plate
R68	47KΩ	20%		BTS-47K	Horiz. AFC Feedback
R69	470KΩ	20%		BTS-470K	Horiz. AFC Filter
R70	1300Ω	5%		BTS-1300 5%	Horiz. MV Cathode
R71	5600Ω	20%		BTS-5600	Horiz. MV Plate

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Mirrortone PART No.	IRC PART No.	IDENTIFICATION CODES
R72	100KΩ	20% 1		BTS-100K	Horiz. MV Grid
R73	220KΩ	20% 1		BTS-220K	Horiz. MV Plate
R74	1200Ω	2		BTB-1200	Horiz. MV Decoupling
R75	390Ω	1		BTS-390	Horiz. MV Decoupling
R76	68Ω	1			Parasitic Suppressor
R77	680KΩ	1		BTS-680K	Horiz. Output Grid
R78	6800Ω	20% 2		BTB-6800	Horiz. Output Screen
R79	10KΩ	20% 2		BTB-10K	Decoupling
R80	200Ω	10		1 3/4A-200	Filter - Wire Wound
R81	100KΩ	2		BTS-100K	Antenna Coil Shunt

◆ Items R55A, R55B, R55C, C43A, C43B, C43C are combined in one unit

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Mirrortone PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC ② 1.68A	750VCT ② .190 ALC	5VAC ③ 3A	6.3VAC ③ 5.9A SEC. 4 6.3VAC ③ 1.95A	TPC-10018	P-8169			

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Mirrortone PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	465Ω Tap ② 85Ω	12Ω Tap ② .60 & 90 SEC. 2 .3.8Ω SEC. 3 0Ω	THC-10003-D		HVO-7			Horiz. Output Trans.
T3	1KΩ Tap ② 12Ω		TOB-10045E	A-8123	A-3037	TSO-8	A-102-X ①	Vert. Output Trans.
T4A	14Ω		YDB-1000D	DY-9	MDF-70	TY-2	Y-12	Horiz. Deflection Coils
B	.65Ω							Vert. Deflection Coils

① Drill one new mtg. hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Mirrortone PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T5	3.8KΩ	3.8Ω	335Ω	.8Ω	TOC-10034	A-3850 ①	A-3026	RO-302 ①	S-53X ①	① Drill one new mtg. hole

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: Mirrortone PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1A	5"	PM	3.6Ω		Mod. P5-X ST-105	5A07	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: Mirrortone PART No.	MERIT PART No.	NOTES
L1	Ant. Coil	0Ω				
L2	Ant. Coil	0Ω				
L3	RF, Mixer Grid & Osc.	0Ω				Low Band
L4	RF Coil	0Ω				High Band
L5	Mixer Grid	0Ω				High Band
L6	Osc. Coil	0Ω				High Band
L7	Cath. Choke	.2Ω				
L8	Fil. Choke	.1Ω				
L9	RF Choke	0Ω				
L10	1st. Video IF	.1Ω				
L11	2nd. Video IF	.1Ω	.1Ω			
L12	3rd. Video IF	.1Ω	.1Ω			
L13	4th. Video IF	.1Ω	.1Ω			
L14	Peaking Coil	7.3Ω				
L15	Peaking Coil	12.2Ω				
L16	4.5MC Trap	11.7Ω				
L17	Sound IF	2.2Ω			TV-151	
L18	Ratio Det.	4Ω	.2ΩCT		TV-110	Tertiary Winding .4Ω
L19	Horiz. Osc.	67Ω				
L20	Width Coil	.5Ω			MWC-2	

PARTS LIST CONTINUED ON PAGE 15

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Mirrortone PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG Pigtail	1/4 A. 250V.			318.250		GJV 1/4	

MISCELLANEOUS

ITEM No.	PART NAME	Mirrortone PART No.	NOTES
M2	RF Tuner		
M3	Crystal		1N64
M4	Focus Magnet		
M5	Ion Trap		
B2	Trimmer	CT-10005	Horiz. Drive

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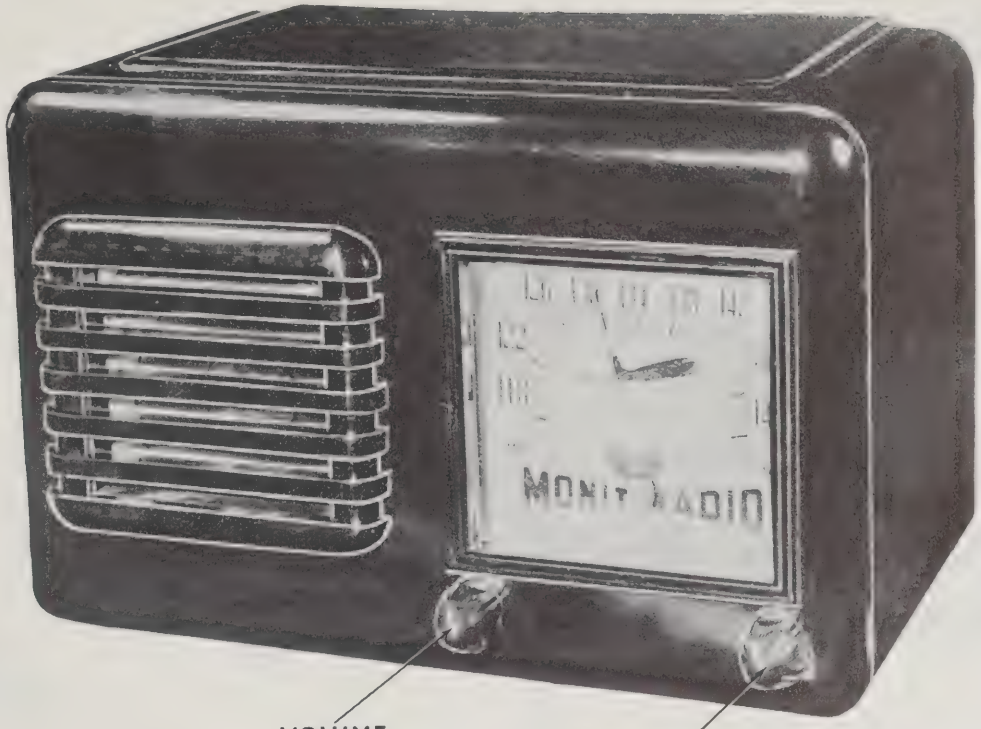
MONITORADIO
MODEL AR-3



MONITORADIO
MODEL AR-3

TRADE NAME	Monitoradio Model AR-3
MANUFACTURER	Radio Apparatus Corp., 55 N. New Jersey, Indianapolis, Ind.
TYPE SET	AC-DC Operated High Freq. AM Superheterodyne Receiver
TUBES (SIX)	Types 12AT7 Conv., 6BJ6 1st IF Amp., 6BJ6 2nd IF Amp., 12AX7, Det.-AVC-Squelch Control - AF Amp., 50C5 Audio Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC RATING .26 Amp. @ 117 Volts AC
TUNING RANGE-SHORT WAVE	118-149MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Direct	High side to terminal "1" on antenna board. Low side to terminal "2".	10.7MC (400~mod.)	Any	Across voice coil.	A1, A2, A3, A4, A5, A6	Adjust for maximum output. Repeat adjustments until no further improvement is noted. Attenuate generator to maintain 1 volt at output meter.
2.	72Ω carbon resistor	High side thru 72Ω to terminal "1" on antenna board. Low side to terminal "2".	149MC	149MC	"	A7, A8	Adjust in order given for maximum output.
3.	"	"	118MC	118MC	"	L3, L1	Compress or expand coil windings, in order given, for maximum output.
4.	"	"	149MC	149MC	"	A7, A8	Adjust for maximum output. Rock the dial while adjusting A8 for maximum output. Repeat steps 3 and 4 until no further improvement is noted.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		Monitoradio PART No.	STANDARD REPLACEMENT		
V1	Converter	12AT7	12AT7	9A	
V2	1st IF Amplifier	6BJ6	6BJ6	7CM	
V3	2nd IF Amplifier	6BJ6	6BJ6	7CM	
V4	Det.-AVC Squelch Control-AF Amp.	12AX7	12AX7	9A	
V5	Audio Output	50C5	50C5	7CV	
V6	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

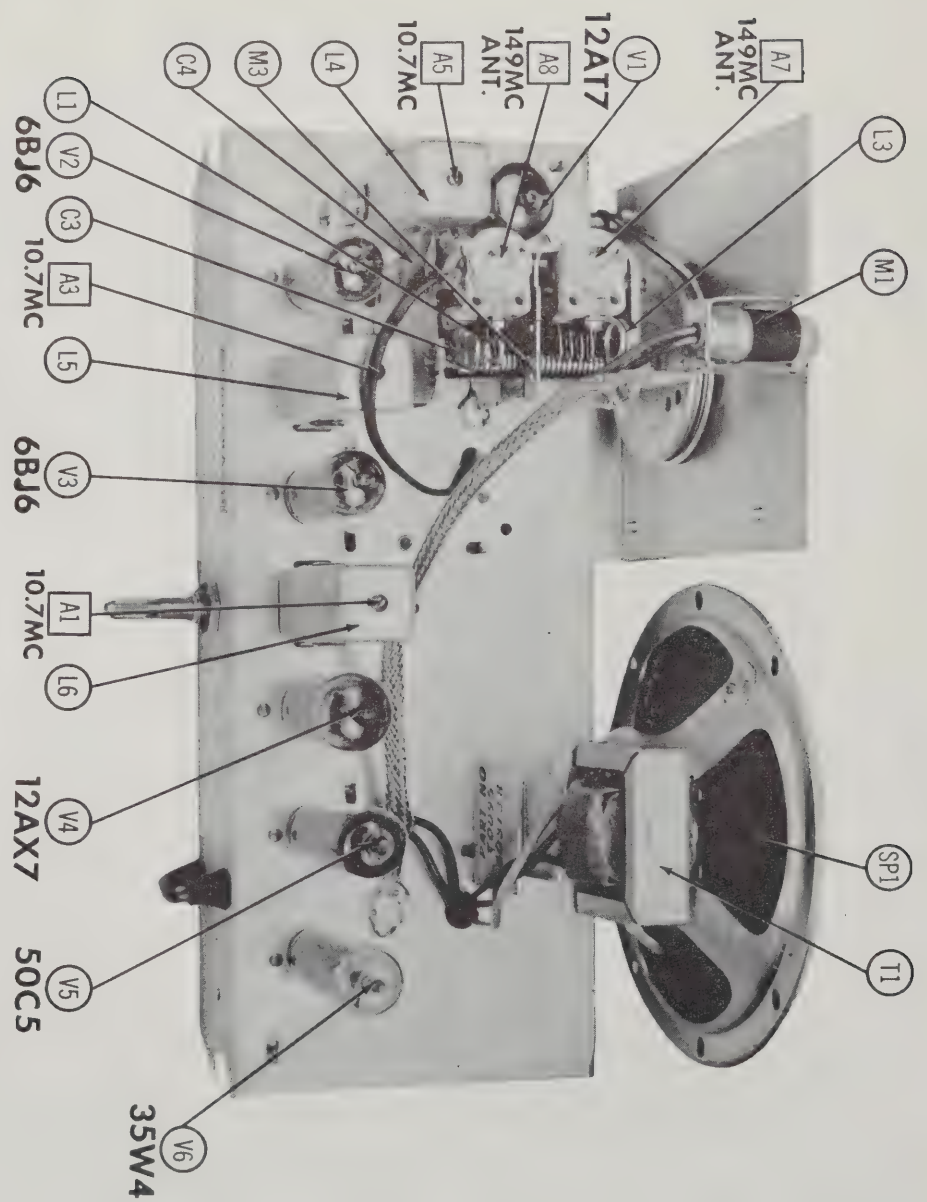
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Monitoradio PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	50	150		PRS150/50-30-20		EDL5315C		2N520 TC26	TVA-3430	
B	30	150								
C	20	25								
C2	2	50		PRS150/4		BBR2-50		TC-30	TVA-1301	
C3	5000		JCD-C4	SI5000	D6-502	TM5D5	GP2-333-502	UC-525	5HK-D5	
C4	56		JCD-A1	SI56	D6-560		GP1K-560	UC-5456	5GA-Q56	
C5	5000		JCD-C4	SI5000	D6-502	TM5D5	GP2-333-502	UC-525	5HK-D5	
C6	270			SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C7	27	500	PQ			5R5Q3			MS-43	
C8	2.7		100-203				N750K-2R7			
C9	5000		JCD-C4	SI5000	D6-502	TM5D5	GP2-333-502	UC-525	5HK-D5	
C10	5000		JCD-C4	SI5000	D6-502	TM5D5	GP2-333-502	UC-525	5HK-D5	
C11	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C12	5000		JCD-C4	SI5000	D6-502	TM5D5	GP2-333-502	UC-525	5HK-D5	
C13	5000		JCD-C4	SI5000	D6-502	TM5D5	GP2-333-502	UC-525	5HK-D5	
C14	270			SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C15	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C16	10000		JCD-C7	SI10000	D6-103	TM5S1	GP2-333-103	DC-511	5HK-S1	
C17	5000		JCD-C4	SI5000	D6-502	TM5D5	GP2-333-502	UC-525	5HK-D5	
C18	10000		JCD-C7	SI10000	D6-103	TM5S1	GP2-333-103	DC-511	5HK-S1	
C19	6						NP0K-060			Note #1
C20	100	500		1468-0001	D6-101	5W5T1	GP1K-101	MC235	1FM-31	
C21	270			SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C22	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C23	.47	100		P188-5		PJ2P5		TP431	2TM-P5	
C24	5000		JCD-C4	SI5000	D6-502	TM5D5	GP2-333-502	UC-525	5HK-D5	
C25	270			SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C26	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C27	.01	400		P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C28	270			SI270	D6-271		GP2K-271	UC-5327	5GA-T27	

Note #1. Not used in all Models

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Monitoradio PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	250KΩ	½	100-093-6	Q13-130	AG-64-Z	AB-51	U-44	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	KB-1	US-26	Attach to R1A
R2A	25KΩ	½	100-093-7	Q14-120	AG-72-V	AB-27	U-28	Squelch
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Monitoradio PART No.	IRC PART No.	
R3	1000Ω	½		BTS-1000	Converter Cathode
R4	10KΩ	½		BTS- 10K	Osc. Grid
R5	1000Ω	½		BTS-1000	Converter Decoupling
R6	100KΩ	½		BTS-100K	AVC Network
R7	82Ω	½		BTS-82	1st. IF Amp. Cathode
R8	470Ω	½		BTS-470	1st. IF Amp. Decoupling
R9	82Ω	½		BTS-82	2nd. IF Amp. Cathode
R10	470Ω	½		BTS-470	2nd. IF Amp. Decoupling
R11	33KΩ	½		BTS-33K	Diode RF Filter
R12	470KΩ	½		BTS-470K	Squelch Control Grid
R13	220KΩ	½		BTS-220K	Squelch Control Plate
R14	2.2Meg	½		BTS-2.2Meg	AF Amp. Grid
R15	220KΩ	½		BTS-220K	AF Amp. Plate
R16	68KΩ	½		BTS-68K	Voltage Divider
R17	470KΩ	½		BTS-470K	Output Grid
R18	150Ω	1		BTA-150	Output Cathode
R19	1000Ω	1		BTA-1000	Filter

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Monitoradio PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.4KΩ	3.4Ω	188Ω tap ⑤ 15Ω	.53Ω	Part of 70095	A3330 ①	A-3031 ①	RO-3 ①	S-1X	① Bend mtg. tabs down, file out slots, mount on original brackets.

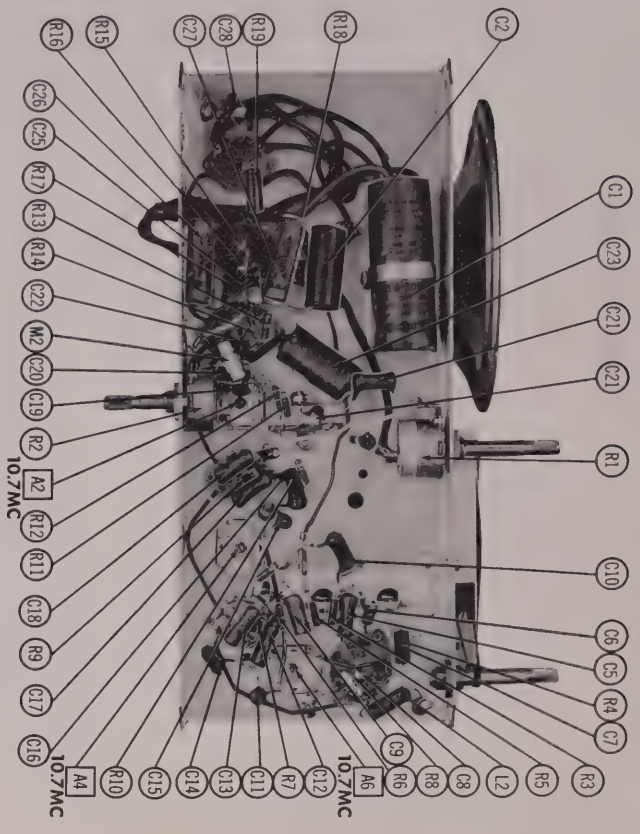
SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Monitoradio PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5"	PM	3.4Ω	70095	ST-105 Mod. P5-X	5A07 ①	① Use Universal mtg. bracket supplied with Speaker.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	Monitoradio PART No.	MERIT PART No.	IRC PART No.	
L1	Ant. Coil	0Ω		300-218-2			
L2	Cath. Choke	.8Ω		CLA		CLA	1 Microhenry
L3	Osc. Coil	0Ω		300-218-4			
L4	1st. IF Trans.	.6Ω	.6Ω	300-077-2	FM-254		
L5	2nd. IF Trans.	.6Ω	.6Ω	300-077-2	FM-254		
L6	3rd. IF Trans.	.8Ω	.8Ω	300-077-3	FM-254		

CHASSIS—BOTTOM VIEW



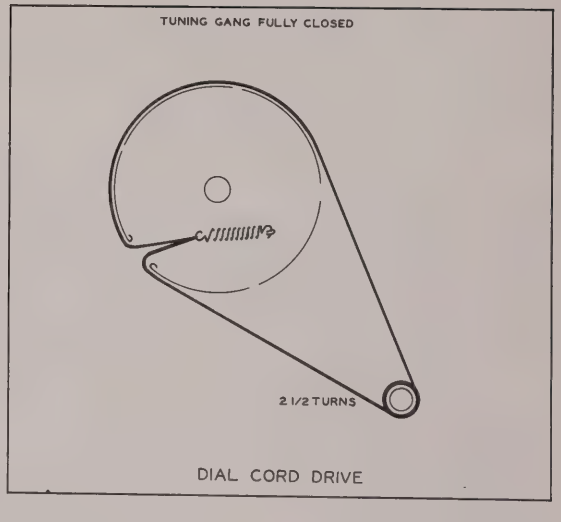
PARTS LIST AND DESCRIPTIONS (Continued)

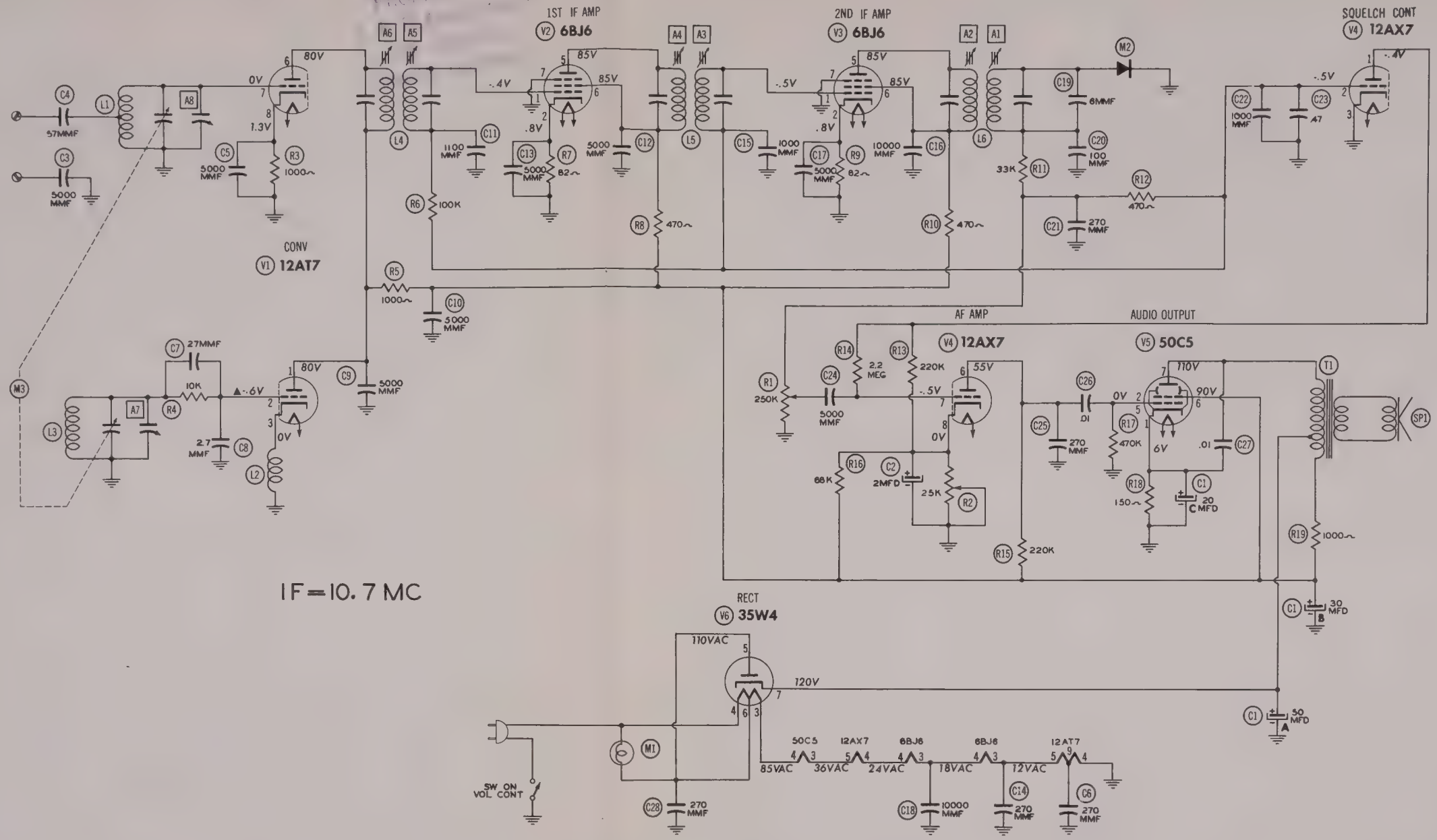
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Monitoradio PART No.		
M1	Bayonet	7.5	.2	White			Type #51

MISCELLANEOUS

ITEM No.	PART NAME	Monitoradio PART No.	NOTES
M2	Crystal		1N34
	Tuning Cap.	300-060-4	Includes pulley
	Cabinet	29-9A	
	Dial Window	135	
	Dial Pointer	1774E	
	Dial Scale	300-237-3	
	Knob	200	Volume & Tuning
	Knob	400-P	Squelch





RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AT7	†2KΩ	10KΩ	.8Ω	12Ω	0Ω	†2KΩ	0Ω	1KΩ	6Ω
V 2	6BJ6	590KΩ	82Ω	12Ω	18Ω	†1.5KΩ	†1.5KΩ	0Ω		
V 3	6BJ6	490KΩ	82Ω	18Ω	24Ω	†1.5KΩ	†1.5KΩ	0Ω		
V 4	12AX7	220KΩ	490KΩ	0Ω	24Ω	36Ω	†220KΩ	2.2Meg	6.5Ω	30Ω
V 5	50C5	150Ω	470KΩ	36Ω	86Ω	470KΩ	†1KΩ	†188Ω		
V 6	35W4	†15Ω	INF	86Ω	121Ω	103Ω	103Ω	40KΩ		

† MEASURED FROM PIN 7 OF V6
▲ TAKEN WITH VACUUM TUBE VOLTMETER
SQUELCH CONTROL FULLY CLOCKWISE.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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PARTS LIST AND DESCRIPTIONS

MOTOROLA
MODEL 62X11U

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Motorola PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	12BD6	12BD6	7BK	
V2	Converter	12BE6	12BE6	7CH	
V3	IF Amplifier	12BD6	12BD6	7BK	
V4	Det.AVC-AF Amp.	12AT6	12AT6	7BT	
V5	Audio Output	35C5	35C5	7CV	
V6	Rectifier	35W4	35S4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: Motorola PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	40	150	23K484234	PRS150/40-20-20		EDL42215		TN129	TVA-3448	
B	20	150								
C	20	150								
C2	.05	200	8R9821	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3	5000		21R115312	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C4	100	500	21R6641	1468-0001	D6-101	5W5T1	GP1K-101	MC235	1FM-31	
C5	.05	200	8R9821	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C6	5000		21B484227	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note #1
C7A	220			SI220	D6-221	5W5T25	GP2K-221	UC-5322		
B	2000		21B482847	BPD-002	DD-202	TM5D2	801-002	DC-522		
C	220			SI220	D6-221	5W5T25	GP2K-221	UC-5322	34C3	
D	5000			BPD-005	DD-502	TM5D5	811-005	DC-525		
C8	.02	400	8R9802	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C9	.047	400	8R490232	489ZGXY-05		PJ4S5		PT415	4TM-S47	
C10	.15	200	8R9843	P288-15				TP417	2TM-P15	

Note 1. Items C6 and R9 are combined in one unit in some Models

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Motorola PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	18K611039	Q13-137X	AK-98	BT-73-S	UT-438	Volume - Tapped @ 300KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

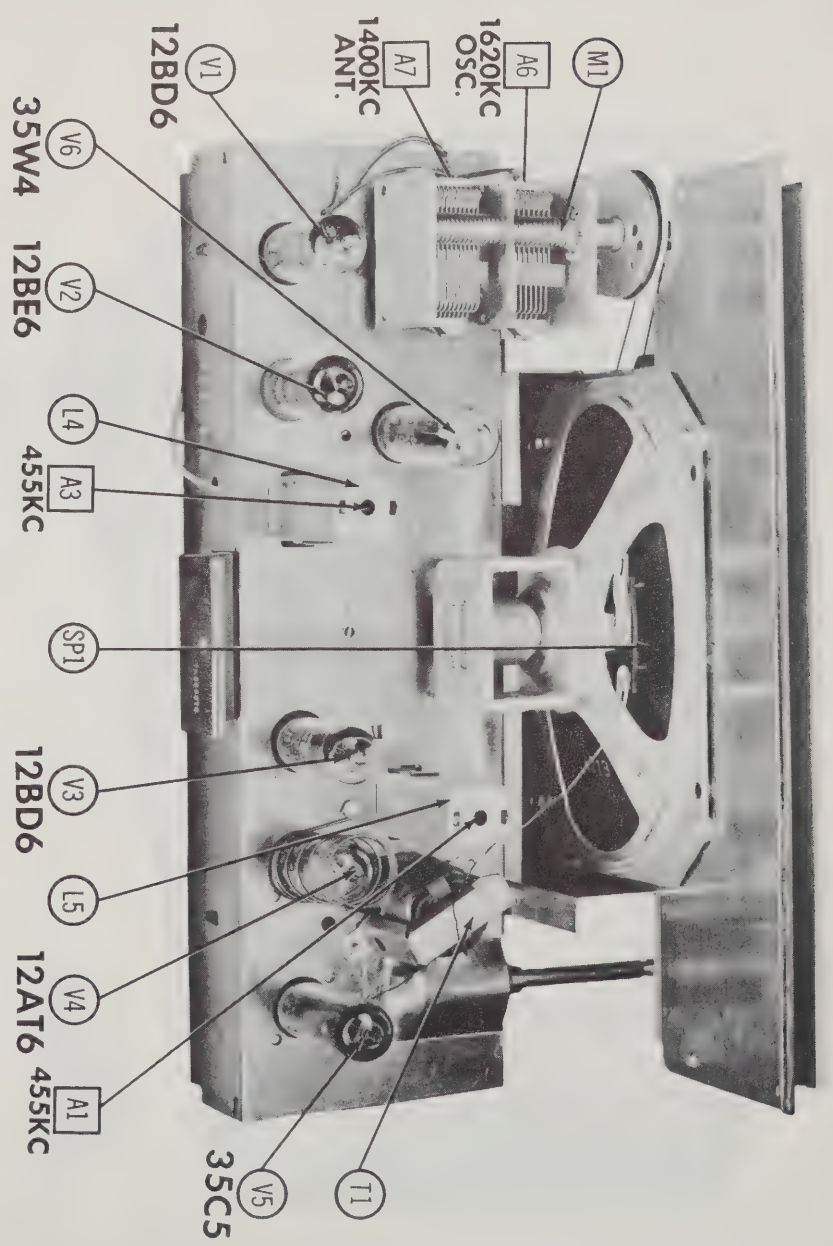
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Motorola PART No.	IRC PART No.	IDENTIFICATION CODES
R2	100KΩ	½	6R6075	BTS-100K	AVC Network
R3	47Ω	½	6R5550		RF Amp. Cathode
R4	4700Ω	½	6R6039	BTS-4700	RF Amp. Plate
R5	22KΩ	½	6R6028	BTS-22K	Converter Grid
R6	22KΩ	½	6R6028	BTS-22K	Osc. Grid
R7	47Ω	½	6R5550		IF Amp. Cathode
R8	3.3Meg	½	6R2118	BTS-3.3Meg	AVC Network
R9	33KΩ	½	21B484227	BTS-33K	Tone Compensation - See Note 1
R10	10Meg	½	6R2109	BTS-10Meg	AF Amp. Grid
R11	470KΩ	½	6R6032	BTS-470K	AF Amp. Plate
R12	470KΩ	½	6R6032	BTS-470K	Output Grid
R13	150Ω	½	6R3992	BTS-150	Output Cathode
R14	27Ω	½	6R5683		Surge Limiter
R15	100Ω	1	6R488025	BTA-100	Filter
R16	1000Ω	1	6R3953	BTA-1000	Filter

Note 1. Items R9, C6 are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA: Motorola PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	2.3KΩ	3.5Ω	235Ω	.4Ω	25B482858-M	A-3332 ①	A-3025	R0-2 ①	S-1X ①	① Drill one new mtg. hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

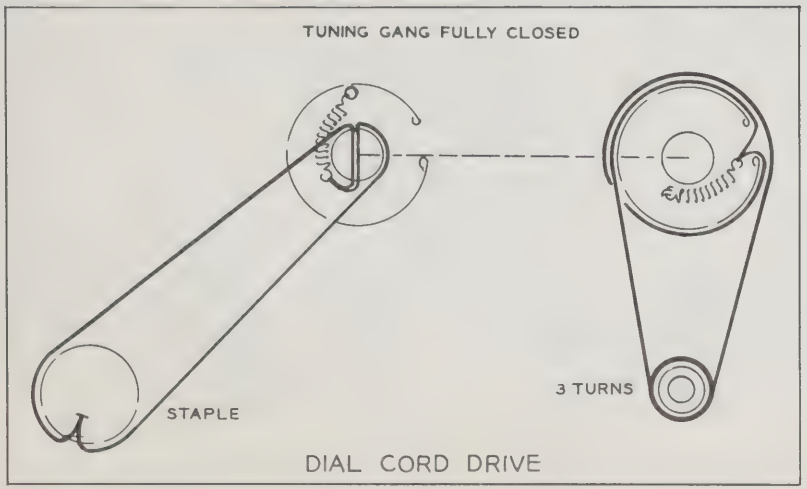
ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Motorola PART No.	VIKING PART No.	QUAM PART No.	
SP1	4" x 6"	PM	3.2Ω	50C611019	46J6	46A07	

COILS (RF-IF)

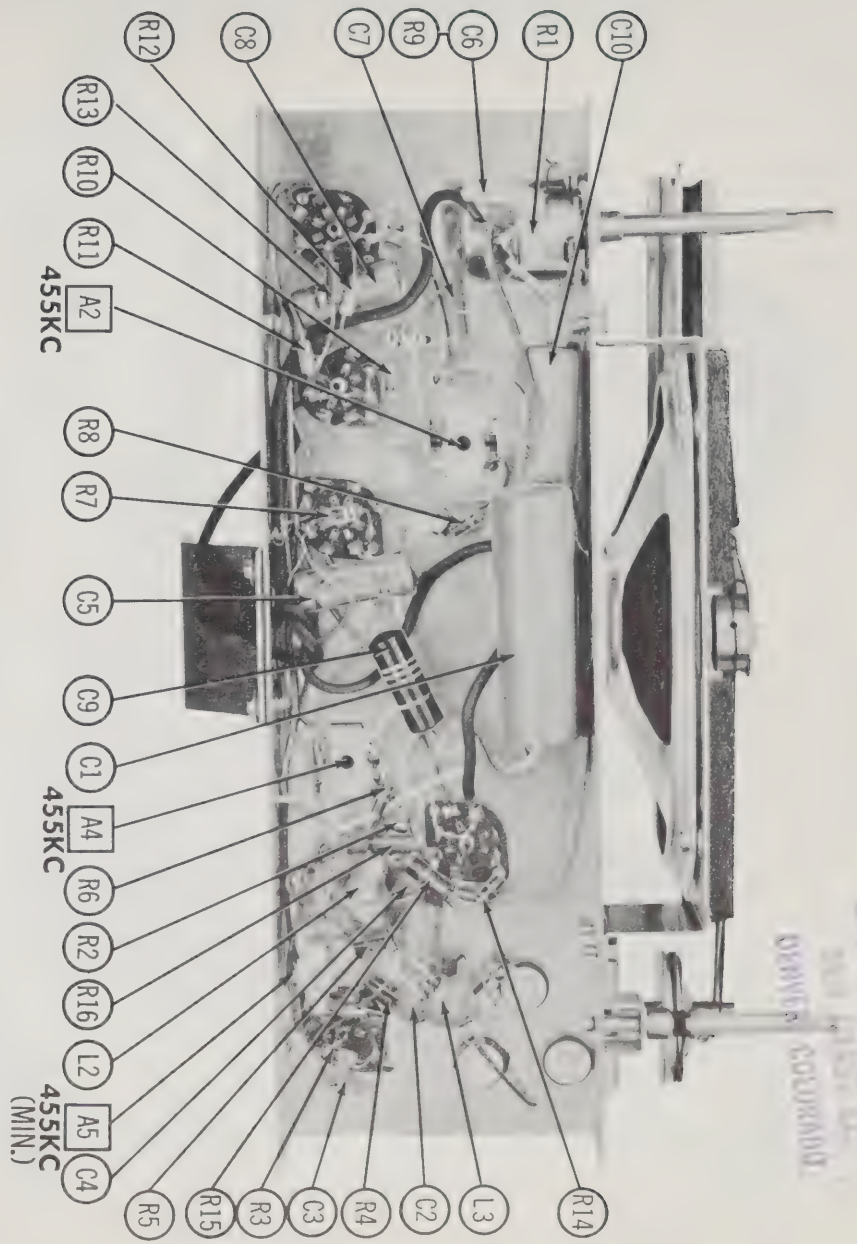
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Motorola PART No.	MERIT PART No.	
L1	Loop Ant.	3.6Ω		24C611037		
L2	IF Trap	61Ω		24A77336		
L3	Osc. Coil	1.1Ω	11Ω	24K600813		
L4	Input IF	17Ω	17Ω	24C485553	BC-352	
L5	Output IF	17Ω	17Ω	24C485553	BC-353	

MISCELLANEOUS

ITEM No.	PART NAME	Motorola PART No.	NOTES
M1	2 Gang Var. Cap.	19B611094	(25-395MMF, 15-162MMF)
A5	Trimmer	20A26941	455KC Trap Adj. (6-60MMF)
	Cabinet	16E610796	Walnut - Model 62X11U
	Cabinet	16K610797	Ivory - Model 62X12U
	Cabinet	16K610798	Green - Model 62X13U
	Dial Crystal	61D610814	
	Knob	36B611132	Walnut - Model 62X11U
	Knob	36K61133	Ivory - Model 62X12U
	Knob	36K611134	Green - Model 62X13U
	Pointer	1X620123	



CHASSIS—BOTTOM VIEW



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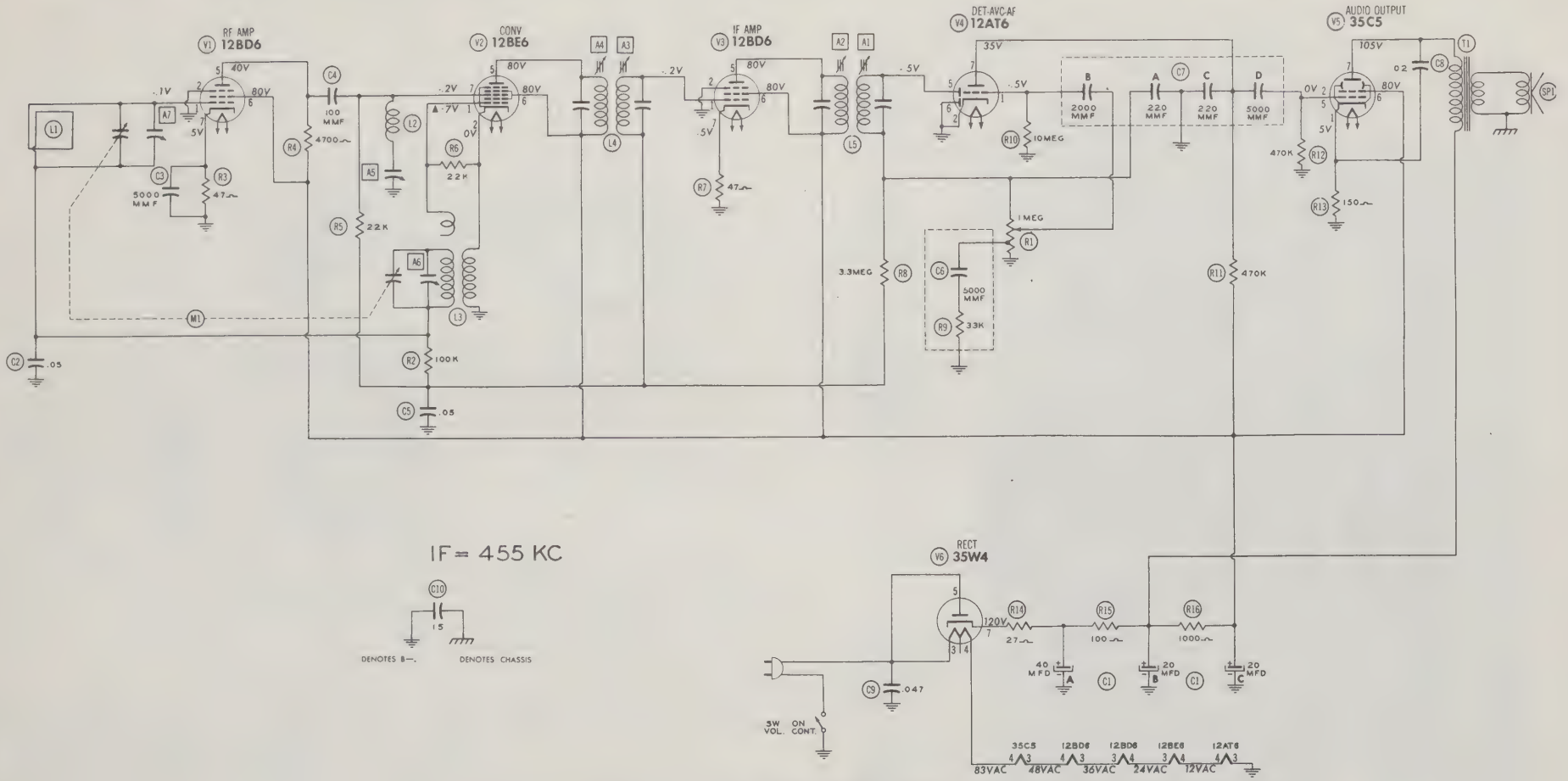
MOTOROLA MODEL 62X11U

MOTOROLA MODEL 62X11U



IF = 455 KC

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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BD6	4.4Meg	0Ω	36Ω	24Ω	†5.8KΩ	†1.1KΩ	47Ω
V 2	12BE6	22KΩ	1.1Ω	24Ω	12Ω	†1.1KΩ	†1.1KΩ	4.3Meg
V 3	12BD6	4.3Meg	0Ω	36Ω	48Ω	†1.1KΩ	†1.1KΩ	47Ω
V 4	12AT6	10Meg	0Ω	0Ω	12Ω	1Meg	0Ω	†470KΩ
V 5	35C5	350Ω	470KΩ	48Ω	83Ω	470KΩ	†1.1KΩ	†382Ω
V 6	35W4	†27Ω	†127Ω	118Ω	83Ω	118Ω	100Ω	80KΩ

† MEASURED FROM PIN 7 OF V6
▲ TAKEN WITH VACUUM TUBE VOLTMETER

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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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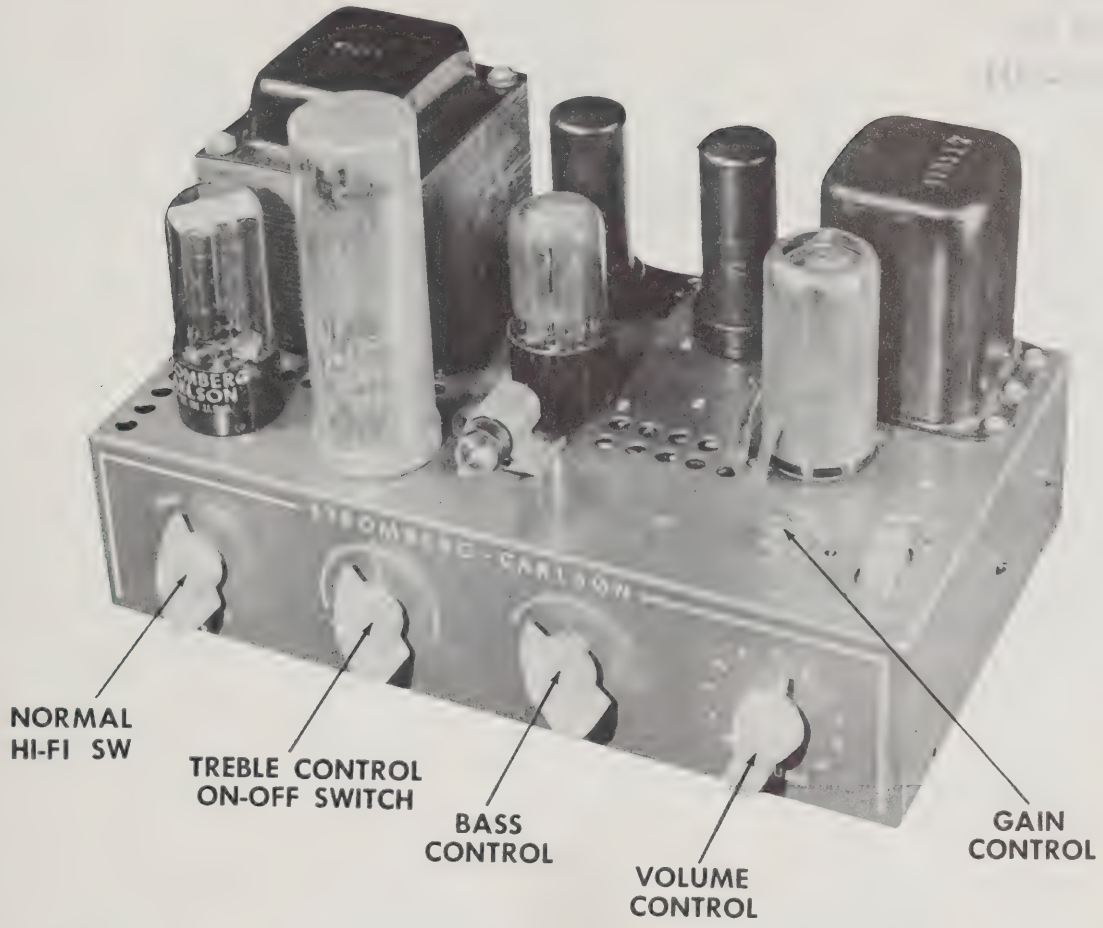
175-14

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

STROMBERG-CARLSON
MODEL AR-37A



STROMBERG-CARLSON
MODEL AR-37A

TRADE NAME	Stromberg-Carlson Model AR-37A
MANUFACTURER	Stromberg-Carlson Co., 100 Carlson Rd., Rochester 3, N.Y.
TYPE SET	AC Operated 2 Channel Audio Amplifier
TUBES (FIVE)	Types 6SN7GT AF Amp., 6SN7GT AF Amp -Phase Inv., (2) 6F6G Audio Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC RATING 1.5 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	AF Amp.	45556	6SN7GT	8BD	
V2	AF Amplifier-phase inverter	45556	6SN7GT	8BD	
V3	Audio Output	41481	6F6	7S	
V4	Audio Output	41481	6F6	7S	
V5	Rectifier	35836	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Stromberg-Carlson PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▬30	475	45688	AFH4-124				FP396	TVL-3840	
B	■30	475						TC64	TVA-1607	
C	▲15	450								
D	15	350								
C2A	■20	50	46898	AFH3-05		UP22215		FP311.2	TVL-3433	
B	▲20	50								
C	20	50								
C3	100	500	24559	1468-0001	D6-101	5W5T1	GP1K-101	MC235	1FM-31	
C4	.003	400	46315	P688-003	D6-302	PTE6D3	GP2-333-302	PT623	6TM-D3	
C5	.1	400	25483	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C6	.25	200	46466	P488-25		PJ2P25		TP430	2TM-P25	
C7	.25	200	46466	P488-25		PJ2P25		TP430	2TM-P25	
C8	.5	200	110414	P288-5		PJ2P5		TP431	2TM-P5	
C9	.1	400	25483	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C10	200	500	27101	1468-0002	D6-201	5W5T2	GP2K-201	MC237	1FM-32	
C11	200	500	27101	1468-0002	D6-201	5W5T2	GP2K-201	MC237	1FM-32	
C12	.003	400	46315	P688-003	D6-302	PTE6D3	GP2-333-302	PT623	6TM-D3	
C13	.1	400	25483	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C14	.1	400	25483	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C15	200	500	27101	1468-0002	D6-201	5W5T2	GP2K-201	MC237	1FM-32	
C16	.1	400	25483	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C17	.1	600	43739	689ZGXY-1		PJ6P1		PT601	6TM-P1	

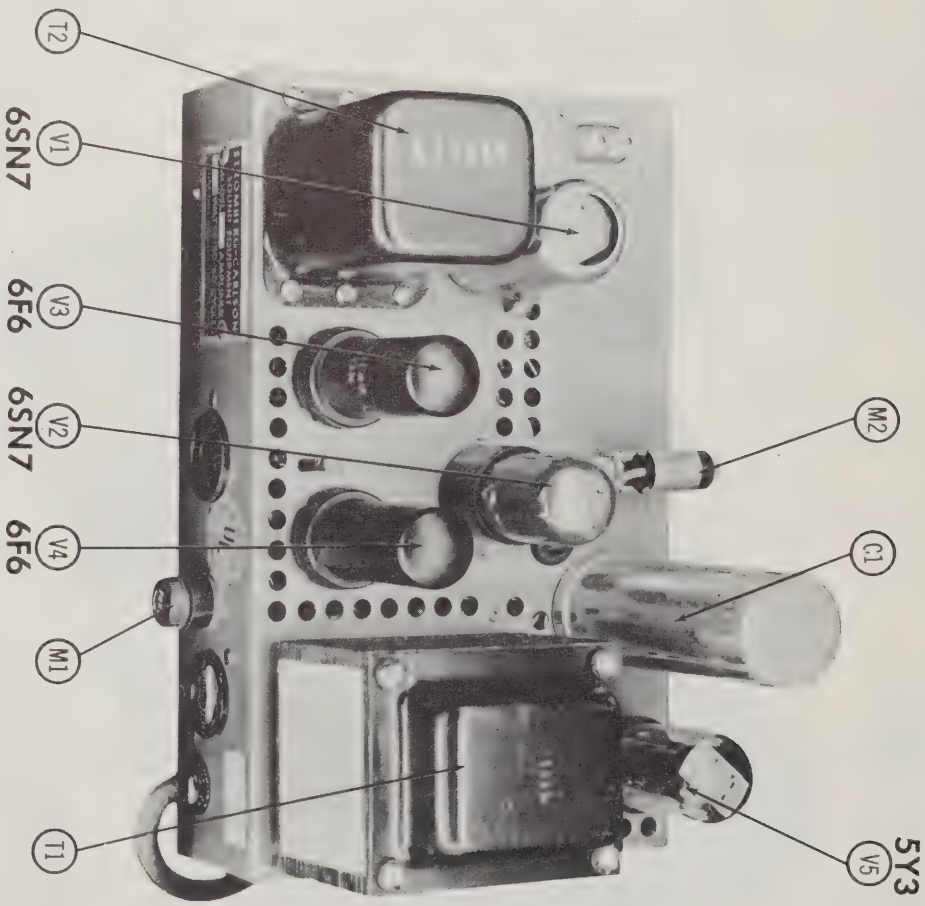
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Stromberg-Carlson PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	250KΩ	½	46525	Q18-130X	AT-43	BT-55	UT-420	Volume-Tapped @ 50KΩ
B	Shaft		Not Req	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
R2A	250KΩ	½	46524	Q11-130	AG-55-S	AB-50	U-46	Gain
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Not Req.	Attach to R2A
R3A	250KΩ	½	46502	Q11-130	AG-55-S	B-50-S	U-46	Treble
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R3A
R4	1Meg	½	46523			B-68		Bass

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Stromberg-Carlson PART No.	IRC PART No.	IDENTIFICATION CODES
R5	470KΩ	½	28187	BTS-470K	Phono Tone Compensation
R6	4.7Meg	½	28199	BTS-4.7Meg	Phono Tone Compensation
R7	1Meg	½	28191	BTS-1Meg	AF Amp. Grid
R8	2200Ω	½	28162	BTS-2200	AF Amp. Cathode
R9	56KΩ	½	28178	BTS-56K	AF Amp. Plate
R10	6800Ω	½	28168	BTS-6800	AF Amp. Cathode
R11	270KΩ	1	28184	BTA-270K	AF Amp. Plate
R12	1800Ω	½	28161	BTS-1800	Tone Compensation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA Stromberg-Carlson PART No.	REPLACEMENT DATA IRC PART No.	IDENTIFICATION CODES
	RESISTANCE	WATTS			
R13	12KΩ	½	28171	BTS-12K	Tone Compensation
R14	12KΩ	½	28171	BTS-12K	Tone Compensation
R15	150KΩ	½	27640	BTS-150K	Tone Compensation
R16	82KΩ	½	28180	BTS-82K	Tone Compensation
R17	100KΩ	½	28006	BTS-100K	Tone Compensation
R18	3900Ω	½	28165	BTS-3900	Tone Compensation
R19	3900Ω	½	28165	BTS-3900	Voltage Divider
R20	47KΩ	2	70056	BTB-47K	Voltage Divider
R21	4700Ω	1	70939	BTA-4700	Voltage Divider
R22	1500Ω	½	28160	BTS-1500	AF Amp. Cathode
R23	39KΩ	½	28176	BTS-39K	AF Amp. Plate
R24	1800Ω	½	28161	BTS-1800	Phase Inverter Cathode
R25	22KΩ	½	149234	BTS-22K	Phase Inverter Grid
R26	39KΩ	½	28176	BTS-39K	Phase Inverter Plate
R27	150KΩ	½	149232	BTS-150K	Output Grid
R28	180KΩ	½	149233	BTS-180K	Output Grid
R29	350Ω	5	46369	1 3/4A-350	Output Cathode-Wire Wound
R30	150KΩ	½	27640	BTS-150K	Feedback Network
R31	10KΩ	2	46675	BTB-10K	Filter
R32	2500Ω	5	46370	1 3/4A-2500	Filter - Wire Wound

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA Stromberg-Carlson PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
	PRI.	SEC. 1	SEC. 2	SEC. 3					
T1	117VAC ⓐ 1.5A	780VCT .088ADC	5VAC ⓐ 2A	6.3VAC ⓐ 2.6A	46559	PM-8409			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA Stromberg-Carlson PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
	IMPEDANCE		DC RES.							
	PRI.	SEC.	PRI.	SEC.						
T2	7KΩ	500Ω Tap ⓐ 8Ω	350Ω CT	33.5Ω Tap ⓐ .44Ω	46110					

FILTER CHOKE

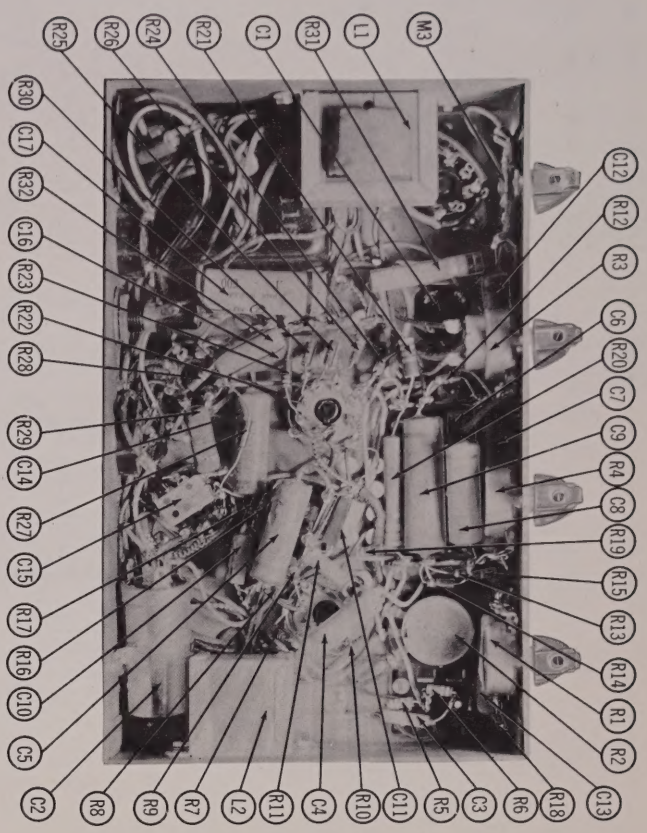
ITEM No.	RATINGS			REPLACEMENT DATA Stromberg-Carlson PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)					
L1	.087A	130Ω	3 Hy.	46505	C-2309 ①	C-2994	R-885 ①	

① Drill one new mtg. hole

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA Stromberg-Carlson PART No.	MERIT PART No.	NOTES
		PRI.	SEC.			
L2	Low Pass Filter	0Ω		34294		

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA Stromberg-Carlson PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	AGC	3A. 250V.	25156		312003 (3AG)	342001	AGC3	HKP

MISCELLANEOUS

ITEM No.	PART NAME	Stromberg-Carlson PART No.	NOTES
M3	Switch Jack	46506 31539	Normal- High Fidelity Twin input

PHONO INPUT DATA

A reluctance or magnetic pickup may be used with the AR-37A Amplifier by providing equalization (and pre-amplification when required) for the pickup selected. For example: When the General Electric Variable-Reluctance Pickup is employed, the G.E. Model UPX003 Phono Pre-amplifier should be used. This self-contained pre-amplifier is provided with an output lead terminated in a standard phono plug which should be plugged into the "input" jack of the AR-37A Amplifier. When the AC cord from the G.E. pre-amplifier is plugged into the AC outlet on the back of the AR-37A Amplifier, the pre-amplifier will be controlled by the amplifier on-off switch which is a part of the treble control.

In addition to supplying the additional amplification to enable the reluctance pickup to be used with the AR-37A Amplifier, this pre-amplifier also incorporates an equalizing network to compensate for the low-frequency constant amplitude characteristic of the usual recordings. For best reproduction using a reluctance pickup, the following control settings are recommended. Fidelity switch - high, Treble control - normal (pointing straight up), Bass control - maximum.

Any other reluctance or magnetic pickup may be used with the AR-37A Amplifier by employing the equalization and amplification recommended by the manufacturer of the pickup selected.

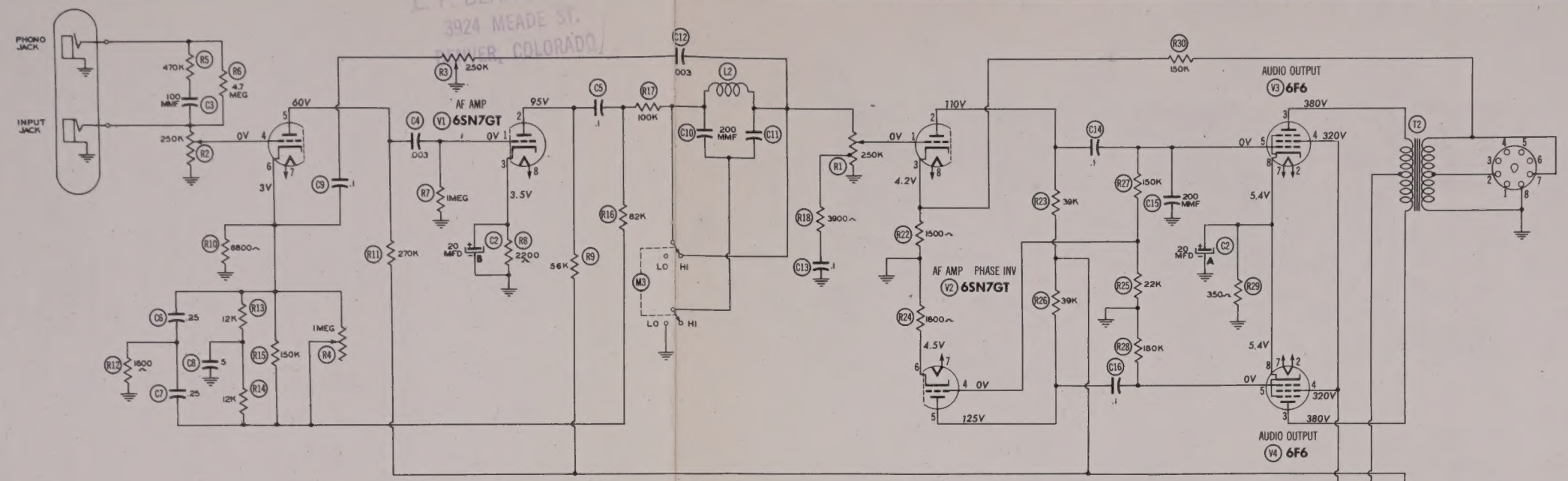
BRIDGING USE

The "Input" jack is a high-impedance input which may be bridged across normal 500-600 ohm circuits (such as wired music lines) without changing the level in these circuits. (The local telephone company may require isolation of the amplifier from the line by means of a transformer.) Attenuation of the higher audio frequencies due to a long wire-line can be equalized by use of the treble control to provide high-frequency boost.

GAIN CONTROL

At time of installation, normal listening level is established by setting the volume control to "7" on the control markings and then adjusting the slotted-shaft "gain" control to produce a volume level slightly louder than average conversation. This corresponds to a sound level of about 70 db. No further adjustment of the gain control is required. Failure to adjust this "gain" control, as described, will result in incorrect bass-compensation. There is also a possibility of overloading the input stage and causing considerable distortion if the amplifier is operated with the "gain" control turned to a position further clockwise than required.

L. F. BLANK
3924 MEADE ST.
DENVER, COLORADO



THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SN7GT	1Meg	†72KΩ	2.2KΩ	125KΩ	†290KΩ	6.8KΩ	¶0 Ω	¶.1Ω
V 2	6SN7GT	0Ω	†51KΩ	1.5KΩ	22KΩ	†51KΩ	1.8KΩ	¶.1Ω	¶0Ω
V 3	6F6	0Ω	¶0Ω	†255Ω	†2.6KΩ	170KΩ	INF	¶.1Ω	350Ω
V 4	6F6	0Ω	¶0Ω	†255Ω	†2.6KΩ	180KΩ	22KΩ	¶.1Ω	350Ω
V 5	5Y3GT	INF	29KΩ	INF	69Ω	INF	72Ω	INF	29KΩ

ALL MEASUREMENTS TAKEN WITH LO-HI FIDELITY SWITCH IN LOW POSITION

† MEASURED FROM PIN 2 OF V5.
¶ MEASURED FROM PIN 2 OF V4.

1 - DC Voltage measurements are at 20,000 ohms per volt, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings,
6 - All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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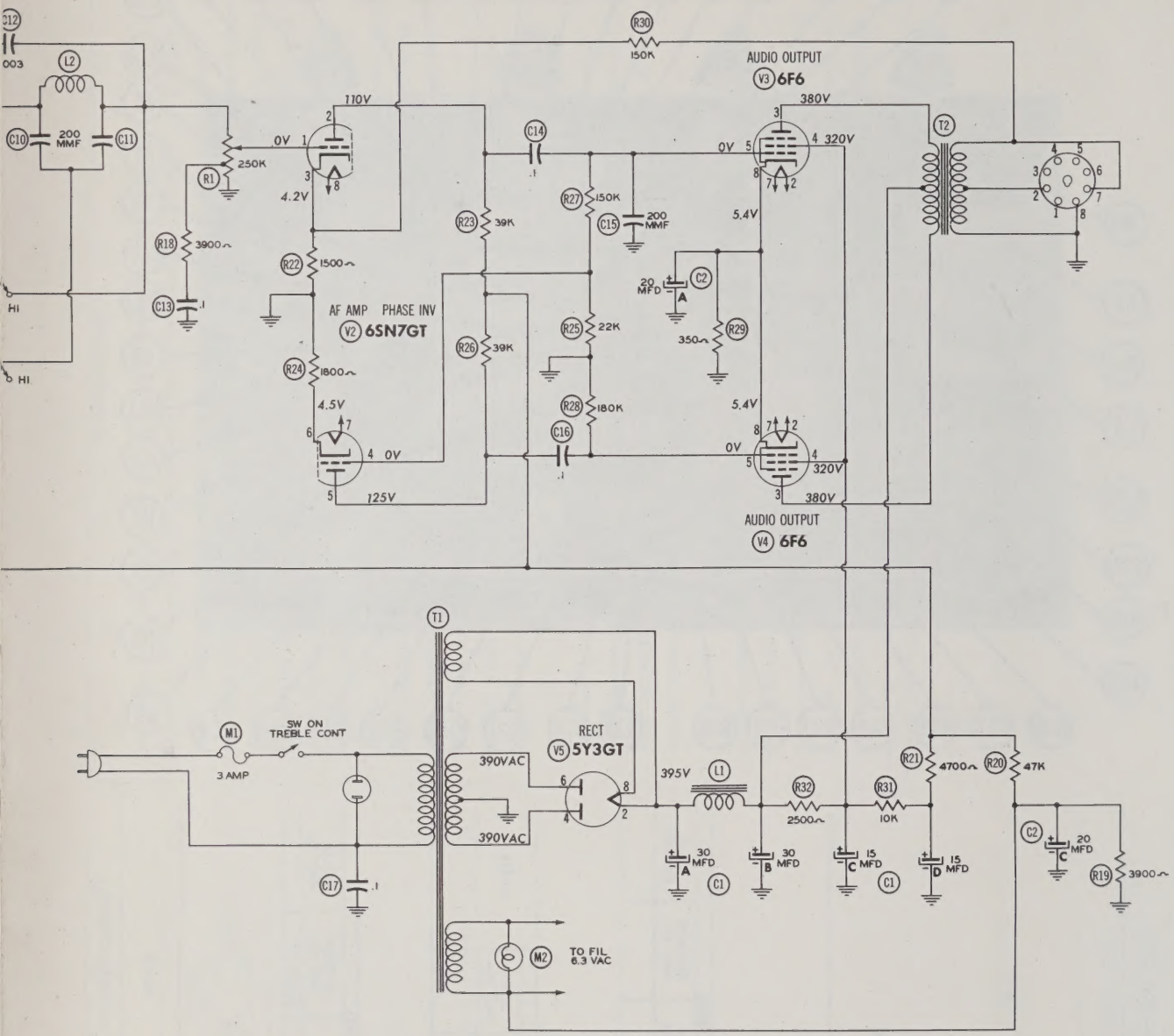

RESISTANCE READINGS

	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
	†72KΩ	2.2KΩ	125KΩ	†290KΩ	6.8KΩ	¶0 Ω	¶.1Ω
	†51KΩ	1.5KΩ	22KΩ	†51KΩ	1.8KΩ	¶.1Ω	¶0Ω
	¶0Ω	†255Ω	†2.6KΩ	170KΩ	INF	¶.1Ω	350Ω
	¶0Ω	†255Ω	†2.6KΩ	180KΩ	22KΩ	¶.1Ω	350Ω
	29KΩ	INF	69Ω	INF	72Ω	INF	29KΩ

EMENTS TAKEN WITH LO-HI FIDELITY SWITCH IN LOW POSITION
FROM PIN 2 OF V5.
FROM PIN 2 OF V4.